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American Steamships.

The American steamship "Golden Age," which was built in this city, went to Liverpool, and thence to Australia, has made the latter voyage in the shortest time of any steamer that ever went from England. The British Government blindly refused to pay Capt. Porter, U. S. N., of the "Golden Age," a fair compensation for carrying the mails, so he refused to take them, and they were sent by a sailing vessel, which had to put back again in distress; and so the mails, which might have been carried in the quickest time ever made to that great Pacific Island, have not yet reached their destination.

The "Golden Age" made the voyage from Liverpool to Port Phillip in fifty-one days running time, from dock to dock—eleven days less than the "Great Britain." The "Golden Age" is the first paddle wheel merchant steamer that has visited Australia. Her engines are of the same character as those on our river boats,—over-head walking beams, but built very strong. We are really glad at the success of this steamer, as a test of the top beam engine for marine purposes. It appears to us, however, that Capt. Porter, is as much indebted for his rapid voyage to a new route which he took, according to the "Wind and Current Charts," as to anything else. We do like the side-lever marine engine best for stormy sea voyages: calm reason inclines us to consider it the safest. It is a triumph, however, to the skill of our New York engineers that the "Golden Age" made this long voyage—as Capt. Porter has expressed it in a letter to her owners—"without so much as a screw being loose, or even a chip being knocked off the outside."

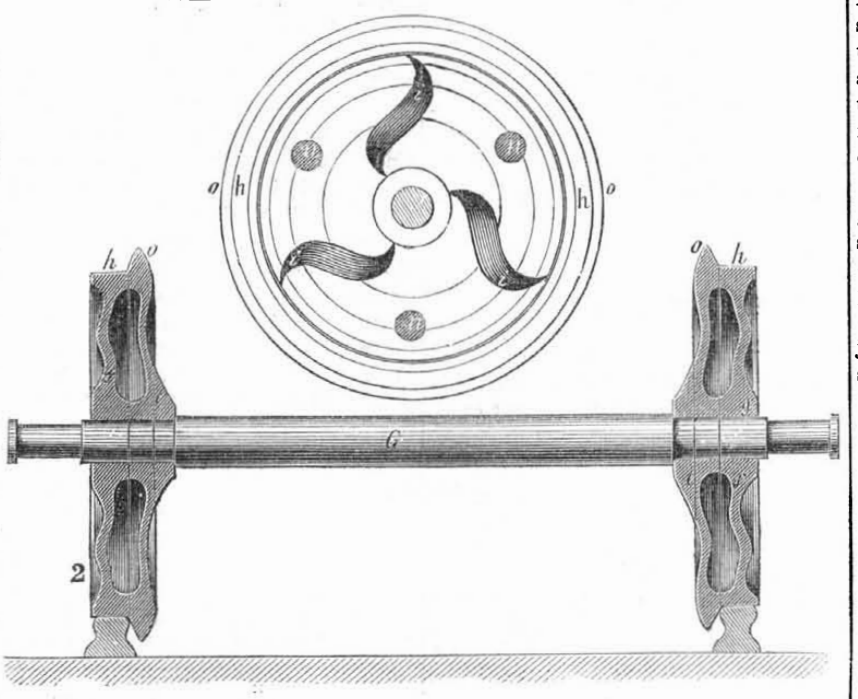
Improvement in Car Wheels.

The annexed engraving represents an improvement in Cast-iron Railroad Car Wheels, for which a patent was granted to George W. Glass, of Allegheny City, Pa., on the 25th of last April.

Figure 1 is a top view of the wheel, and fig. 2 is a transverse vertical section of two wheels secured on the axle, G. The same letters refer to like parts.

The wheel has two disks or sides, *e* and *f*. The space between them is connected by the hub, the rim, and flange. All the several parts of the wheel are cast in one piece. The wheel is dished inwards, the inner face of the hub, *g*, projecting beyond the plane of the flange, *o*. In casting the wheel, the core holes, *n n n*, are left in one or both sides. The inner disk, *e*, of the wheel is of a uniform thickness throughout, and of the form represented. The disk or side, *f*, is also of a uniform thickness throughout, and of the form represented; it is not dished, however; its general bearing is perpendicular to the axis of the wheel. Its shape is a strongly waved line, with one semicircular convex projection near the rim, and with a corresponding projection near the hub. The two sides, *e f*, are united to the rim and to the hub, by an arch, and there is no angle formed at these points of union. These arches are continuous around the rim and the hub, and tend to make the wheel strong. In each of the disks or sides are braces, *i i i*, which are projections outwards, and cast with the wheel; they are of the same thickness as the disks. The braces are placed between the hub and the rim at equal distances apart, and may be three or more in number. The object of these braces is not so much to allow for the contraction of the metal of the sides in cooling, (which, however, is necessary,) as to give additional strength to the wheel without adding materially to its weight. These braces may be used on one or both sides of the wheel, and a different form of them from that represented may be used on different disks. The claim is for the construction of cast-iron railroad car wheels, having their two sides united at the tread and hub inside by semicircular or elliptical arches, in combination with the braces represented.

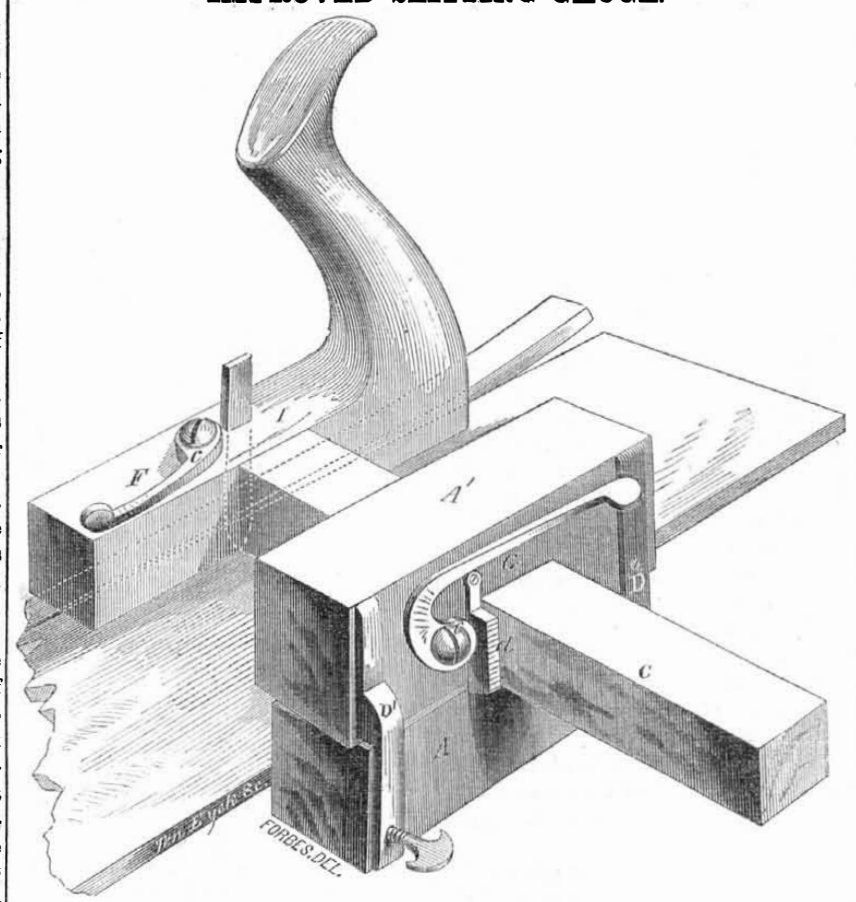
PATENT CAST-IRON CAR WHEEL.



Mr. Glass is master machinist in the machine shop of the Ohio and Pennsylvania Railroad Co., at Allegheny City, and he informs us that his wheels have been used on that road, under both passenger and freight cars for about eleven months—250 of them being now in use,—and that "since the first was put on an axle, *not one* has given out, broken, or shown any sign of a defect." This is strong testimony in favor of the qualities of this wheel.

More information may be obtained by letter addressed to the patentee.

IMPROVED SLITTING GAUGE.



The annexed engraving is a perspective view of an improvement in slitting gauges used by carpenters, cabinet makers, &c., for which a patent was granted to James Ballard, of Ashtabula, Ohio, on the 18th of April last.

This invention relates to the preventing of the slitting gauge running off the board, or cutting in the direction of its grain, and thereby spoiling the article being operated upon. It also relates to securing the cutter in the stock of the gauge, and likewise of securing the head to the arm or bar on which it slides, and further, to a new arrangement of the friction rollers, for taking off the friction from the face and bottom of the gauge in moving from one end of the board to the other.

The improvement consists in making the gauge head in two sections, and with back stops and set screws, and uniting them together at the center of their length by a fulcrum pin, so that they may turn freely and independent of each other, and the lower section adjust itself horizontally on said fulcrum to a position in line with the straight edge of the board at the moment the cutter attempts to take a course in line with the cross-grain of the wood, and thereby cause the upper section to which the knife stock is connected, to assume a position slightly out of line at right angles to the board, and the cutter consequently to be turned slightly, or accordingly as the set screws may be set, and caused to have a slight drawing cut, which prevents it from running off the board, or cutting in line with the grain of the wood, and thereby spoiling the work.

It also consists in so arranging friction rollers that they will take off the friction from the bar on which the gauge slides, and also from the bottom of the cutter stock, and face of the lower section of the gauge head.

A A′ represent the gauge head made in two parts, and united together by a fulcrum pin. The upper section, A′, has a hole cut horizontally through it for the bar or arm, C, on which it slides to pass through. The fulcrum pin is secured in the center of the length of the bottom of the upper section, and passed through the lower section, and has a nut screwed on its extremity, which prevents the two sections getting separated; the two sections turn freely and independent of each other. D D′ are the back stops attached fast to the upper sections; D is made of such shape that it allows of the upper section moving to a considerable extent out of line at right angles with the board being slit. There are two set screws, (one shown) for regulating the set of the upper section—these set screws pass through the lower ends of the stops, D D′, and rest in the same. By the set screw shown the upper section can be set to such a position that the cutter can be turned so as to have a drawing cut, and be prevented from cutting in line with the grain of the wood. The set screws may be set so as to retain the upper section fixed, or they may be unscrewed so that the upper section has freedom to move, but during such changes the lower section always retains a position parallel with the edge of the board. Heretofore gauge heads have been made stationary, and in one piece, and when the gauge having such a head is used for slitting boards which have their fibers running into one another, a very great loss of time, and labor, and stuff, is experienced from the knife cutting off or taking a course in line with the grain of the wood. This difficulty is overcome, for the slitting tool can be set so as to give it any amount of draw, and at the same time always cut the stuff of an equal width its whole length, as the distance from the fulcrum to the cutter is always the same, no matter what draw the the knife may have, owing to their being in line with each other; F G are the eccentric levers for locking the slitting cutter and gauge head in their appropriate places—the lever, F, which is attached by its fulcrum to the center stock, I, bears directly on the knife, and by reason of its eccentricity at *c*, it bites very rigidly upon the same, and holds it effectually in place. The lever, G, bears upon the

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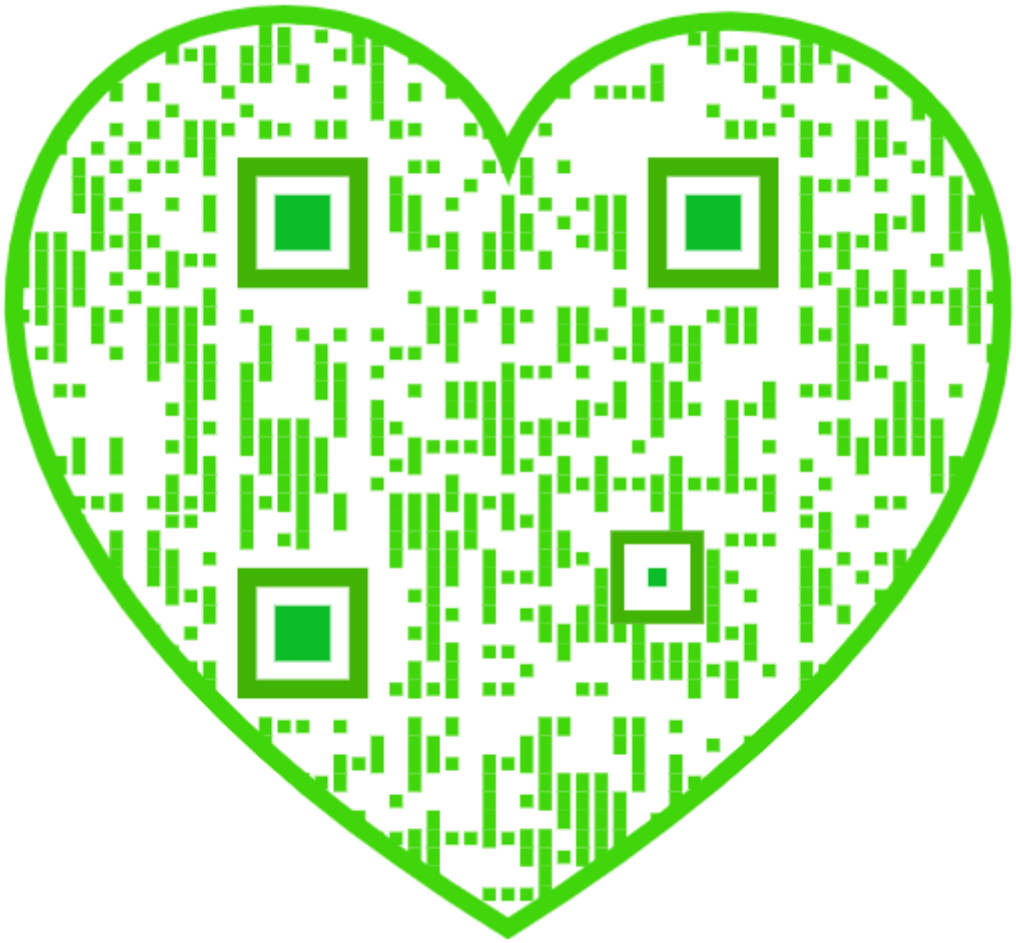

swinging plate, *d*, which is hung to the upper section, A′, and bears against the side of the bar, C, in a similar manner as F bears against the knife, and locks the section firmly to the bar, C. By means of these eccentric levers the cutter or head can be adjusted in an instant, and again secured.

There are seven small rollers on this gauge, not shown in this figure. Three are set vertically in the face of the lower section, A, so as to bear against the edge of the board; two are arranged horizontally on spindles projecting from the face of A, so as to bear on the top of the board and take off the friction from bar, f. The other two are arranged under the cutter stock, I, so as to bear on the top of the board and take off the friction from said stock. By the said rollers no other parts of the gauge come in contact with the board. The improvement appears to be a very excellent one.

More information may be obtained by letter addressed to the patentee.

Sewing Machine Decision.

The following is a copy of the Decision of Commissioner Mason in the great Sewing Machine case, on which there was a declared interference between Walter Hunt and Elias Howe, Jr., embracing the features of the employment of the eye-pointed needle in combination with a shuttle. The Decision, it will be found, presents the subject in a clear light, and is in accordance with our ideas of the matter as we have expressed them in discussing the claims set up by Mr. Hunt.

"In 1846 Howe obtained a patent for a sewing machine, upon which there have since been many improvements by others. Hunt now claims priority to all these upon the ground that he invented the sewing machine substantially as described in his specification, previous to the invention by Howe.

He proves that in 1834 or 1835, he contrived a machine by which he actually effected his purpose of sewing cloth with considerable success.

Upon a careful consideration of the testimony, I am disposed to think that he had then carried his invention to the point of patentability.

It is not necessary for this purpose that he should have constituted a working machine—much less a machine sufficiently complete and perfect to be introduced into general use as a successful rival to the needle carried by hand.

The very idea of carrying on this delicate and difficult operation by machinery was a bold one. The contrivance of a machine that should carry out the idea, was patentable, although that machine was so imperfect as not to supersede the ordinary mode of sewing. I understand from the evidence that Hunt actually made a working machine, thus even going further than was absolutely necessary to entitle himself to a patent, had he then applied for it.

The question then arises whether anything has since transpired to deprive him of this right. It is contended by his counsel that an interference having been declared by the Office, nothing remains but the naked question of priority—that the Office cannot go backward and take up the question of patentability.

This is not my understanding of the law. The substantial question to be decided is, whether Hunt is entitled to a patent. If for any cause he is found not to be so, that ends the investigation. If this discovery is made at any time before the patent has issued it will not be too late to withhold it. The proof that there was an earlier inventor than either Hunt or Howe (though showing that the latter was no more entitled to a patent than the former) would dissolve the interference, as it would show that Hunt was entitled to nothing.

And if for any other cause the testimony should show that Hunt was not entitled to a patent, it would be a useless waste of time to proceed further with the investigation.

Nor can I concur in the opinion that the Commissioner of Patents has no power to decide upon questions of abandonment. The Patent Office should, if possible, make such decisions as will be sustained by the courts. It is true there are some powers exercised by the courts which the office has no authority to exert, but I do not understand the examination of the subject of abandonment to be necessarily and in all cases of this number.

There are doubtless some decisions which seem to countenance such a doctrine, but they are made where the alleged abandonment resulted from *non user*. Neglect to use an invention will not, by itself alone, furnish a just ground for the refusal of this Office to grant a patent.

The 7th section of the act of 1836 enumerates the conditions upon which a patent shall issue. The Commissioner is required to grant the patent unless some one of certain facts is found to exist. Among these is not enumerated the neglect to use the invention. The courts have in some instances recognized the probability of such a ground of invalidity in a patent, (see Gayler et al, vs. Wilder, 10 Howard, 477,) but such a ground of objection cannot be successfully urged in the Patent Office.

But among the causes for refusing a patent mentioned in the 7th section of the Act of 1836 is, "that the invention has been in public use or on sale with the applicant's consent or allowance prior to the application." If such a fact is found to exist, the Commissoner is forbidden to grant the patent. Length of time is wholly immaterial. If the invention was in public use or on sale with the consent or allowance of the inventor for a single day, it would be fatal.

The Act of 1839 modified this rule. The 7th section of that Act declares "that every person or corporation who has or shall have purchased or constructed any newly invented machine, manufacture, or composition of matter prior to the application by the inventor or discoverer for a patent, shall be held to possess the right to use and vend to others to be used the specific machine, manufacture, and composition of matter so made or purchased, without liability therefor to the inventor or any other person interested in such invention. And no patent shall be held to be invalid by reason of such purchase, sale, or use, prior to the application for a patent as aforesaid, except on proof of abandonment of such invention to the public, or that said purchase, sale, or prior use, has been for more than two years prior to such application for a patent.

After the passage of this Act no public sale or use of the invention would render the patent involved, unless it amounted to an abandonment of the invention to the public, or unless the inventor delayed his application for a patent more than two years after one instance of such sale or use.

The Act of 1839 therefore mitigates the severity of that of 1836, to that extent, and the conditions of the 7th section of the Act are modified accordingly,

The Commissioner is now directed to issue the patent, notwithstanding the invention may have been in public use or on sale, unless such use or sale amounted to an abandonment of the invention to the public, or unless it took place more than two years prior to the date of the application. And into all these matters the Commissioner is by law directed to inquire.

I do not think the patent can be withheld on the ground of abandonment strictly. It is true the inventor allowed some eighteen years to elapse between the date of his invention and that of his application for a patent, still, mere lapse of time does not evince that positive abandonment of which this Office can take notice. It is not an abandonment growing out of public sale or use.

The sale to Arrowsmith, and allowing the property in the invention to remain for so many years in his hands, can hardly be an abandonment, for although Hunt would have been bound in this respect by any act of Arrowsmith's while he held the title, there is no evidence of his having done anything of an affirmative character while he thus held the interest in his hands, and he therefore made no such abandonment as can be recognized by this Office.

But when we regard the sale to Arrowsmith with reference to the second branch of the qualification contained in the 7th section of the Act of 1839, it seems fatal to the claims of Hunt. He made a sale of his whole invention, securing a valuable consideration in return, and allowed some seventeen years to elapse before any application was made for a patent, either by himself or his assignee. This seems to bring the case within the range of the prohibition of the Act of 1836, as modified by the Act of 1839.

It is true this was but a single sale, but the courts have held that although allowing others to use the invention temporarily for the purpose of experimenting and perfecting it, would not prejudice the rights of the inventor, a sale for profit would do so. Curtis on Patents, p. 349.

Now here was a sale for profit. It was the same in effect as though he had conveyed all his interest, and stipulated affirmatively that he gave his full consent that the invention should be publicly sold and used.

It may be thought that a single sale of this kind would not place the interests of the inventor thus in jeopardy, but it has been held otherwise. See Curtis, p. 350 and 307.

The language of the 7th section of the Act of 1839 corroborates this view of the case.

It declares in effect that the sale to any person or corporation shall not prejudice the inventor unless made more than two years prior to the application for a patent. The fair interpretation of the intent of Congress is, that if such sale had been made more than two years prior to the application, it would invalidate the patent.

It is true this was not a sale of a "machine, manufacture, or composition of matter," mentioned in the 7th section of the Act of 1839, but it was a sale of the whole invention, including the right to make these machines. The Supreme Court, in the case of McClurg, et al, vs. Kingsland et. al, 1. Howard Reports, page 202, have decided that the sale of the invention brings the case within the scope of the provisions of the 7th section of the Act of 1839.

But it may be contended that although Hunt would be bound by the acts of Arrowsmith while he held the ownership of the invention, still that Arrowsmith never gave his consent that the invention or the machines should ever go into public use or be publicly sold.

If this were admitted to be a sufficient answer to the argument above stated, it would not be conclusive on the subject. There is still a difficulty in the way of Hunt's success, growing out of the patent obtained by Howe.

The papers in the case show that Howe obtained a patent for substantially this same invention in 1846. The presumption is, that that since that time the invention had been in public use or on sale. Now Hunt, by the sale to Arrowsmith, had given his consent, that any person, or all the world, might use the invention, therefore it was in public use or on sale with the consent of the inventor and present applicant.

This may seem fine-spun, but it is believed to be fair logic, and if founded on one presumption, that presumption is just and legitimate. Besides it is thought proper that when the first inventor allows his discovery to slumber for eighteen years, with no probability of its ever being brought into useful activity, and when it is only resurrected to supplant and strangle an invention which has been given to the public, and which has been made practically useful, all reasonable presumptions should be in favor of the inventor, who has been the means of conferring the real benefit upon the world.

I am therefore of the opinion that Hunt is not entitled to a patent, and the interference will accordingly be dissolved.

C. Mason, Commissioner."

Filed May 24, 1854.

A New Bed of Gypsum.

A contractor on the Virginia and Tennessee Railroad, in making some excavations on the farm of a Mr. Robertson, near Lynchburg, Va., discovered an extensive quarry of gypsum, which, but for the railroad, might have remained unknown for many years.

The construction of the great tubular iron bridge across the St. Lawrence, opposite Montreal, has been commenced.

Solar Light.

In your allusion to my theory on Solar Light in the "Scientific American" of the 6th ult., I perceive that you have quoted one of my sentences incorrectly, and represent me a maintaining that light is generated "without a change in the nature of matter." This absurd idea I have endeavored to refute in most of my articles on the solar light, and even a refutation is given in the sentence in question, if quoted correctly. I therefore disavow the absurdity and nonsense which the sentence is made to express in your paper in consequence of the omission of three lines. I request that you will correct the misquotations, and give the language of my pamphlet, which is as follows:—

"In this manner we may account for the perpetual brilliancy of the sun, *without supposing that it contains in such vast abundance a kind of matter which is so carefully excluded from every other member of the system*, and which in contradiction to every known principle of chemistry, is capable of furnishing an unlimited amount of light, without suffering any waste or any loss of its illuminating power."

Daniel Vaughan.

Cincinnati, Ohio, May 21st, 1854.

[Mr. Vaughan is a very careless writer, as his *three* supplied lines prove. We now understand him to mean that the sun does not contain *vast* quantities of a light-producing subtile fluid, and that in the production of light this fluid undergoes a change of nature—a chemical change. On page 4 of his pamphlet it is asserted that the sun contains an atmosphere of several millions of miles hight of this subtle fluid—a vast quantity truly—and by receiving "a sufficient degree of compression its luminous properties are called forth." Not a word is said about a chemical change of its nature. To produce luminosity and a change of nature, it requires two or more elements, consequently this sun-light fluid of Mr. V. must combine with some other element in the sun, or somewhere else, before it can become changed—chemically—in its nature. Now there is no hint of this, in his pamphlet. We defy any man to present a single fact in the whole range of chemistry, to prove that any element, *per se*, like this subtle fluid, can, by pressure—nothing else—become luminous, and change its nature.

By what he has admitted, his theory amounts to this, that the heat and light of the sun are produced by gas in a state of combustion; which is a much inferior and more unreasonble theory, as a whole, than the old one, namely, "that the sun is a molten mass—a globe of fire." By his theory, the poles of the sun must be non-luminous, as he states there is a vortex at each pole, where the cold fluid, in a non-luminous state, rushes in to supply the waste. At the sun's equator there can be no attraction, but a repulsion, as this sun-light fluid—changed in its nature, as stated—is there expelled. Now, as the atmosphere of this fluid in the sun, is asserted to be several millions of miles in hight (the number is wisely not given) and as the earth is only 95,298,260 miles from the sun, and as light will travel that distance in about eight minutes, some of this subtle fluid from the sun—changed in its nature—must have found its way to our globe by this time.

Will Mr. Vaughan, in his next pamphlet, tell us what is the difference between this fluid in its primitive and its changed nature? But without some process of renovating this fluid in its changed state—about which not a word is said—the sun cannot keep up a perpetual brilliancy, it must grow dim. Like carbonic acid, which is a product of combustion, this sun-light fluid, thrown from the center of the solar orb, must be afterwards drawn into the sun's polar vortexes, and tend to quench its luminosity, instead of contributing to it These are the only conclusions to be drawn from chemistry respecting this theory. Had Mr. Vaughan not repudiated the mechanical theory of light, he might have maintained more sensible and less absurd views than those which he endeavors to support.

A diamond, said to be of the first water, and weighing nineteen carats, was lately dug up in Manchester, near Richmond, Va.

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[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING MAY 30, 1854.

SEWING MACHINES—I. M. Singer, of New York City: I claim the method described of forming a seam with one thread, by carrying the thread through the cloth or other substance with the needle, and forming the thread into a loop, and at the next passage of the needle forming another loop, which is drawn through the first or previously formed loop, as described.

I also claim the employment of lateral pressure, whether by a cam or lever, or their equivalent, to act against and in combination with the needle at or near the end of its perforating motion, as described, and to insure the proper position of the needle, as described.

I also claim in combination with a needle for perforating the substance to be sewed or stitched and carrying the thread through it, a looping apparatus to form a loop at each perforation of the needle, and consecutively liberating the previously formed loop over the one last formed, to effect the concatenation of the stitches, as described.

And I also claim the looping apparatus with a recess, into which the thread is drawn to form a loop or its equivalent, as specified, in combination with the lever or its equivalent, for alternately opening the recess to receive the thread to form the loop and closing it to shut in the last formed loop, and discharging the previously formed loop over the one last formed, as set forth.

I also claim, giving a positive motion to the spring arm guide, through which the thread passes from the tension apparatus to the needle, by combining therewith the two bridles, or their equivalents, and the needle carrier or some equivalent moving part of the machine, as specified, the carrier forcing up the said spring arm guide to the limit governed by the fixed bridle, and the movable bridle forcing it down to make the slack, as described.

And finally, I claim the method of feeding the cloth or other substance to the needle for the progress of the same, by means of the foot or pad which holds it to the table, substantially as specified, by means of which the cloth, or other substance can be turned on the needle as its axis, whilst the needle is in it, and the foot or pad is lifted up preparatory to the feed motion, as set forth.

SEWING MACHINES—I. M. Singer, of New York City: I claim the method of imparting the feed motion to the feed wheel by means of the cord connected at one end with the adjustable arm of the rock shaft and the other with the reaction spring, substantially as specified, when this is combined with the friction brake, operating as specified.

I also claim governing and regulating the tension of the needle thread by means of the wire, with its eyes or guides, as stated, in combination with the turning wing, by which the coiling or winding of the thread around the wire can be increased or decreased at pleasure, substantially as specified.

And finally I claim in the sewing of leather, causing the needle thread, on its way to the needle, to pass through linseed oil or its equivalent, mixed with a dryer, substantially as and for the purpose specified.

[Mr. Singer is a well-known manufacturer of Sewing Machines at No 323 Broadway New York City.]

PROCESSES OF GALVANIZING METALS—C. B. Miller, of Wilmington, Del.: I claim the construction and application of the rotary reticulated immersing cylinders or receptacles, and the use thereof in combination with the melting and drying apparatus and diaphragm tanks for the purpose of rotary dipping, as described, and operated as set forth for the galvanizing of metals.

PROCESSES FOR TREATING GUTTA PERCHA—John Murphy, of New York City: I claim incorporating with gutta percha, substantially the proportion of sulphur or its equivalent, as specified, and subjecting it to such a degree of heat, and for such a length of time, as to expel therefrom its injurious volatilizable ingredients, preparatory to vulcanizing the gutta percha thus treated or for using it in the condition that my said process of treatment puts it into.

DYEING PROCESSES—C. T. Appleton, of Roxbury, Mass. Patented in England, 30th Aug., 1853: I do not claim dyeing fibrous materials by subjecting them to pressure while they are allowed to lie in bulk within the dyeing liquid, as this has been essayed before, but has failed to be productive of my useful result on account of the impossibility of obtaining by this means a uniform action of the dye upon the material.

But I claim controlling the pressure of the atmosphere during the process of dyeing by means of exhaustion, pressure, &c., in combination with the method described of keeping the folds of the goods separated from each other by keeping the fabric contantly in motion or by suspending it upon hooks within the vat, as set forth.

CORN CRUSHERS—Wm. Beal, of Lowell, Mass.: I claim the application and use of the peculiar form of tooth cut in the ribs both of the cylinder and concave, the front of the tooth being shaped obliquely across the ribs and every succeeding tooth being oblique in an opposite direction to the preceding one, for the purpose and object described.

KNITTING MACHINES—John H. Barsantee, of Philadelphia, Pa.: I claim, first, the arrangement and combination of the two cylinders, with a space between them and supported and moved as set forth.

I also claim the ring in which the inside cylinder sits, and by which it is elevated or depressed, said ring being attached to the frame by set screws for that purpose.

I also claim vibrating the cylinder by means of the adjustable lever interposed between it and the gearing or the equivalent thereof, as described.

MANUFACTURING TURBINE WHEELS—Chas. H. Bigelow, of Lawrence, Mass.: I claim, first, attaching the buckets of turbine wheels to their rims or disks, by forming tongues or dovetails on their upper and lower edges and then flowing the melted metal used in casting the said rims about them, so that the rims when cool shall rigidly hold and embrace the buckets, as set forth.

Second, I claim attaching the guide curves or diaphragms of the turbine to their disk, by casting them in a similar manner in connection with their disk.

Third, I claim using the guide curves of the turbine to sustain the weight of the disk and of the water impinging upon the same, by casting the lower part of the flume around dove-tails formed on the said guide curves, so as to mortise them together, or by casting the lower part of the iron flume into holes formed in the said guide curves, so as to rivet them together as described.

HOT WATER APPARATUS—John Brown, of New York City: I claim the curved return bends formed with and on the upper part of the end of each pipe to pass into and connect with the next pipe above, thereby allowing of the pipe being the full size of any flanch or socket that would be needed with a separate elbow, exposing more surface for the size of the apparatus and preventing air remaining in the apparatus, as described.

And I claim the construtions and arrangement of the apparatus for the purpose specified.

FASTENING THE DISKS AND RIMS OF CAR WHEELS—Abel Breaer, of Saugatuck, Conn.: I do not claim for confining cast-iron wheel rims to disk centers, the use of bolts radial to the center of the wheel, nor bolts whose direction is parallel to the axis of the wheel.

But I claim for confining cast-iron wheel rims to single or double disk bodies or centers, the use of bolts whose direction is parallel with a plane perpendicular to the axis of the wheel, and whose direction is also in the course of circular arcs, described from the center of the wheel, the bolts being either conical in form, or encased by conical sheaths to facilitate such djustments as shall secure the parts firmly together, as set forth.

HOOKS AND EYES—J. H. Fairchild, of Jericho, Vt.: I do not claim the general device of bending the hook back or inward to prevent the eye from being loosened, but only when the body of the hook is bowed and the point brought quite down within the bow.

I claim the peculiar form and construction of the hook having its point brought round within the bow, as described, so as to prevent its being unintentionally unhooked or becoming catched or tangled with clothing, hair, or other substances.

VISES, OR CHUCKS FOR HOLDING CYLINDRICAL BODIES—Chas. Gregg, of Brooklyn, N. Y.: I do not claim a cylindrical die or revolving circle having scores or recesses in its periphery, except when such die is used in combination with another and smaller cylindrical die having a groove cut in its periphery parallel or nearly parallel with its axis, which forms two sharp edges that sink into the body to be held when pressed against it by means of the screw and slide, as described.

MACHINE FOR CUTTING OUT CLOTH—John Harraday, of New York City. Patented in England Jan. 20, 1854: I claim, first, the employment, for the purposes of cutting several thicknesses of cloth or other fabric or material, of a reciprocating knife, which works through an opening in a table upon which the cloth is placed, and has one side and its edge working in, or very nearly in, close contact with the sharp edged plate, or other sharp edge at one side of the said opening, as set forth.

Second, the employment of a knife with the back extended in the form of a rod, for the purpose set forth.

Third, making the table, which carries the cloth fabric or material, with a loose center piece, which contains an opening to receive the knife, and has its axis in line with the axis of the knife shaft, and is geared with the knife shaft so as to turn therewith, and at all times bear the proper relation thereto, as described,

[This valuable improvement is published on page 180 this Vol. Sci. Am.]

CAMERAS FOR TAKING STEREOSCOPE OR OTHER DAGUERREOTYPES—S. A. Holmes, of Brooklyn, N. Y.: I do not claim the mere operation of taking two pictures with two cameras; but I am not aware that two camera boxes have ever been attached together at the forward edge, to be directed on to one object to be taken, by which means the axis of the cameras are directed on to the same object, and the object glasses are always the same distance from the object which would not be the case if the two cameras were not connected together, the axis of the cameras at the object glasses (or daguerreotype plates) forming an isosceles triangle to the object, whether the object be near to, or distant from the cameras.

Both cameras might be so fitted as to be adjusted in the enclosing box, but it is believed to be superfluous.

I claim attaching two camera boxes together at or near their front vertical edges, and adjusting one or both of said cameras on to the object of which a daguerreotype or other view is to be taken, by means of the pinion and rack, or its equivalent, as described.

STAVE MACHINE—Carmi Hobsons, of Hannibal, Mo.: I claim the combination of the cutting rim and wheel, hung in the same vertical plane with the fixed rest passing between their cutting surfaces for the purposes of holding and controlling the stave whilst it is being dressed on both sides, as described.

HAY ELEVATORS—T. T. Jarrett, of Horsham, Pa.: I claim, setting the catch free when the elevator reaches any desirable hight by connecting the said catch with a weight by a rope, whose length is adjusted in proper relation to the hight, as described, to make the weight operate on the catch, precisely when the elevator reaches such a hight.,

[See notice of this improvement in No. 48, Vol. 8. Sci. Am.]

VENTILATING WINDOW FOR RAILROAD CARS—Geo. Neilson, of Boston, Mass.: I am aware that for the purpose of ventilating railroad carriages, inclined or hinged flaps have been used on the sides of the windows or window openings thereof.

I am also aware that a curved guard has been made to extend down one side and over the top and under the bottom of a window thereof. I am also aware that a window has been made in two sashes, each hinged to one side of the window, so that one may be made to stand inclined to the plane of the other and to have an opening between them.

I do not claim any such means of ventilating. I am also aware that pyramidal windows have been used on the tops of buildings. I am not aware that a ventilator window, to be applied to a railway carriage, has ever been constructed in the form of a frustum of a pyramid and provided with a window opening, and a closing window or door composed in part or entirely of glass or other suitable transparent material. Nor am I aware that a ventilator window so made has had a deflecting rim or flanch applied entirely around its opening and for the purpose of shedding rain ahd deflecting currents of air from the inclined surfaces of the window.

I therefore claim the frustro-pyramidal ventilator window as made to top, bottom, and vertical sides of windows, and with an opening and a closing window, as specified.

And I claim the arrangement of the deflector range entirely around the window opening, and in raspect to the deflecting sides, as specified, not intending to claim a deflector or guard, as applied to a car window opening, but to limit my claim to its arrangement on four deflecting sides or plans, and entirely around the opening between them, as set forth.

NECK YOKES—John R. Pierce, of Castile, N.Y.: I claim placing the attaching rings of neck yokes upon racks passing on each side of a pinion movable upon the main bolt, or any arrangement substantially the same, for admitting of the equal longitudinal movement of the said rings, as set forth.

QUARTZ CRUSHER—Daniel Poole, of Mount Carmel, Ill. I claim the arrangement and construction of the machine, substantially as described.

KNITTING MACHINES—E.M. Ray, of Providence, R.I.; I claim the combination of the series of radial and horizontal lifter wires, and the stationary lifter cam with the rotating set of needles, the same being made to operate as set forth.

SEWING MACHINES—M. W. Stevens and E. G. Kinsley, of Stoughton, Mass.: First, we claim, when the shuttle and feed motion are arranged within a cylinder upon or around which the work is placed, so arranging and operating the feed motion as to move the work longitudinally to the cylinder, as described, in order that longitudinal seams may be made in articles of circular form.

Second, We claim attaching the pressure rollers to a coliar, which fits to a portion of the needle rod guide or other suitable fixed part of the machine in such a way, as described that they may be turned and readily secured to run either longitudinally or transversely to the cylinder or bed upon which the work is placed.

[There seems to be no end to sewing machine improvements. See notice of this one in page 313, Vol. 8, Sci. Am.]

TYPOGRAPHER—R. S. Thomas, of Wilmington, N.C.: I claim the type holder, with its types and corresponding guide holes or their equivalents, in combination with the pin, the spring inking apparatus and the revolving cylinder in its sliding frame, constructed and arranged as specified.

[This is an ingenious device, and is useful to those who are unable to write.]

FURNACE GRATE BARS—B. C. Vanduzen (essignor to Jno. Martin & B. C. Vanduzen,) of Cincinnati, O.; I am aware that grate bars have been provided at their lower edges with projections affording connection for a steam or feed air pipe, and therefore make no claim to such projections separately.

But I claim the form and arrangement, as described, of furnace grate bars and bearing bars, the former being clear of the usual protuberances for lateral support, and having each one a pivot at its rear end, occupying a socket in the bearing bar, so as while holding the rear ends of the grate bars to their proper places and relative distance to capacitate them for lateral shifting at their front ends, at the option of the furnace man, without liability to dislodgment, or for removal of a portion without endangering the stability of those which remain, as set forth.

SELF-ACTING NIPPER BLOCKS—Wm. Waley, of New London, Conn. (assignor to Jonathan Whipple, Jr., of Hopedale, Conn.): I claim the construction and arrangement of the block, as described, viz.: placing the two pulleys and nippers, between the cheek plates, and attaching said cheek plates by a joint to a standard, the upper part of which is curved or bent, and is placed a short distance below the pulley and nipper, so as to allow sufficient space for the rope to pass between the pulley, nipper, and end, when the two pulleys are in a horizontal line, by which arrangement and construction, the block is made self-acting, operating in the manner set forth.

[The application for this invention was filed in the Patent Office more than twelve months since. Such delays are not unfrequent, and we hope another instance of the kind will not occur. Inventors cannot afford to stand such delays, and the Commissioner should see to it that this evil is remedied.]

ADDITIONAL IMPROVEMENT.

GRINDING MILLS—Oldin Nichols, of Lowell, Mass. Patented Oct. 12, 1852: I claim, first, the shortening of the frontal projection of each tooth, in such manner as to form a notch in their tops.

Second, I claim the corrugated ribs and concave, in combination with the teeth and corrugated cylinder, these teeth having their frontal projections shortened so as to produce or constitute notches on their tops, or with teeth without their frontal projections being shortened or notched on their tops, either or both, for the purpose set forth.

NOTE—Five of the applications in the above List were prepared at the "Scientific American Patent Agency."

Flax Industry.—No. 8.

It is a curious circumstance connected with the history of the linen manufacture in Ireland, that during the reign of Charles II., the extension of the woolen manufacture appears to have made such rapid strides that the jealousy of English manufacturers was fiercely aroused. Protection in its most bigoted form, was the practice of those times, and consequently we find an Act, passed by the British Parliament, prohibiting any export of wool from Ireland except to England and Wales.

Not content with this, in the tenth year of William III., another Act was passed, founded on a report from a special committee, forbidding any export whatever, from Ireland, of work or woolen manufacture. The reasons given by the Committee for their recommendation, were, that the English trade must be preserved, and that wool and labor being so much cheaper in Ireland than in Great Britain, that the manufacturers there could not compete at all successfully with their sister country, Hibernia.

The woolen trade being thus reduced to the quantity required for home consumption, of course rapidly declined, and its place was soon taken by the then rising linen manufacture. We find that in Queen Anne's reign, the Irish House of Commons sent a bill, in favor of the linen trade, to Her Majesty, accompanied with an address requesting permission from the English Parliament to export this article to the British Colonies. The English Ministers, after crushing the woolen trade, always appeared anxious to encourage that of linen, in which the Irish had for competitors the French and Flemish artisans. The celebrated Lord Stafford not only favored this new branch of industry, while Lord Lieutenant of Ireland, but embarked a large sum himself in the trade.

Among other expedients adopted, was an order from the Government, that hat-bands and scarfs of linen alone should be used at funerals, which custom prevails at the present time.

At this period all the machinery in use was very simple, and worked principally by hand; about 1725, some new machinery was invented and applied for many of the processes, and in 1764 Dr. James Ferguson, of Belfast, received a premium of £300 from the Linen Board, for the successful application of lime in linen bleaching. In 1770, the same gentleman introduced the use of sulphuric acid; up to this period the acid generally employed was buttermilk, and the dung of cattle was also commonly applied instead of alkali. After this improvements rapidly succeeded each other, both chemical and mechanical.

From the history of the progress of flax culture in Ireland, previous to the introduction of machine spinning, "it might have been inferred, says Mr. Sproule, that a close approximation to perfection in that department of rural economy, had been attained by the Irish small farmer; but although it attracted so much attention, and for a great length of time afforded a source from which large profits were derived, yet, in common with most Irish affairs, the management of the flax crop even in the most favored districts, when compared with that of Belgium and other countries, was seen to be wretchedly defective. During the prosperous times of the linen manufacture, those engaged in it were satisfied with the large profits which were then obtained, without any inquiry as to whether they could be still further increased by pursuing a different course of management; and accordingly, when subjected to competition with the produce of the foreign market, the Irish flax grower found that he could not maintain his ground. The consequence was, that the growth of flax materially decreased in Ireland, and had not the most active measures been taken for the renovation of this important branch of industry, it would in a short time have been banished from this land."

When hand spinning in Ireland broke down under the influence of the mechanical processes, the demand for flax from the interior of the country declined. The proprietors of the manufacturing establishments found it for their advantage to buy in large quantities, and therefore sought the markets of the Continent, especially Russia and Belgium, where prices ruled lower than in Ireland. The result was, that Irish flax lost its market, and in some districts its culture was entirely abandoned. This decrease, up to the year 1835, had amounted to seventy-five per cent., when the failure of the crop on the Continent induced the manufacturers to give their attention once more to Ireland, to make up the deficiency. Under the rise of prices, the flax culture received at this period a new impetus, and, aided by the efforts of Government, public societies, and private enterprise, together with the diffusion of correct agricultural information, and the invention of new machinery and processes, the culture has continued to progress up to the present time.

In 1841, the Royal Flax Improvement Society of Ireland, an association of proprietors and manufacturers, was originated at Dublin, and still continues in active and efficient operation. Since its formation, it has expended of subscriptions collected of the members, upward of $40,000, and of money granted by Government to the Society for the promotion of flax cultivation in the South and West of Ireland, $20,000. Yet notwithstanding the efforts that have been made by Government and societies to stimulate the growth of flax, and though the total extent of the flax crop in Ireland, for 1851, was estimated by the Census Commissioners as equal to 138,619 acres, the value of which would be about $8,000,000, —this produce is only one-fourth of that annually required by the rapidly increasing manufactures of the United Kingdom. In 1841, the quantity of flax imported into Ireland from foreign countries, was upwards of 80,000 tuns, causing an annual drain from this impoverished country of from $20 to $30,000,000 for flax alone; and if the sums paid for seed and oil cake be also taken into account, the outlay was much greater.

Flax, at the present time, is cultivated in almost every part of Ireland, but it is in the County of Ulster that this branch of industry has attained its greatest developement. Of the 138,619 acres of flax grown in Ireland during the year 1851, only 14,893 acres were beyond the bounds of this province. It is in Ulster, also, that the principal seats of the flax manufacture are to be found.

Honest Labor.

Labor, honest labor, is right and beautiful. Activity is the ruling element of life, and its highest relish. Luxuries and conquests are the result of labor,—we can imagine nothing without it. The noblest man of earth is he who puts his hands cheerfully and proudly to honest labor. Labor is a business and ordinance of God. Suspend labor, and where is the glory and pomp of earth—the fruit fields and palaces and fashionings of matter for which men strive and war! Let the labor scoffer look around him, look at himself, and learn what are the trophies of toil. From the crown of his head to the sole of his foot, unless he is a Carib, made as the beast, he is the debtor and slave of toil. The labor which he scorns has tracked him into the stature and appearance of man. Where gets he his garments and equipage? Let labor answer. Labor makes music in the mine, and the furrow, and at the forge.

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New Inventions.

Improved Rotary Engine.

The annexed engravings are views of the improvements in Rotary Engines, for which a patent was granted to J. C. fr. Saloman, on the 4th of last October. Figure 1 is a side elevation; figure 2 is an end elevation, and figure 3 a diagonal transverse section through the line 1 1, figure 1. The same letters refer to like parts on all the figures.

Of the many forms of rotary steam engines, those of the revolving piston kind are generally acknowledged to be the most economical and best, as in this description of engine the steam is confined in a close and rigid chamber, and acts only on a solid and inflexible surface, and makes its escape by confined passages so that its full effect may be obtained in useful work. This improvement has reference to this class of engines and is designed to remove defects which have characterized the most of them.

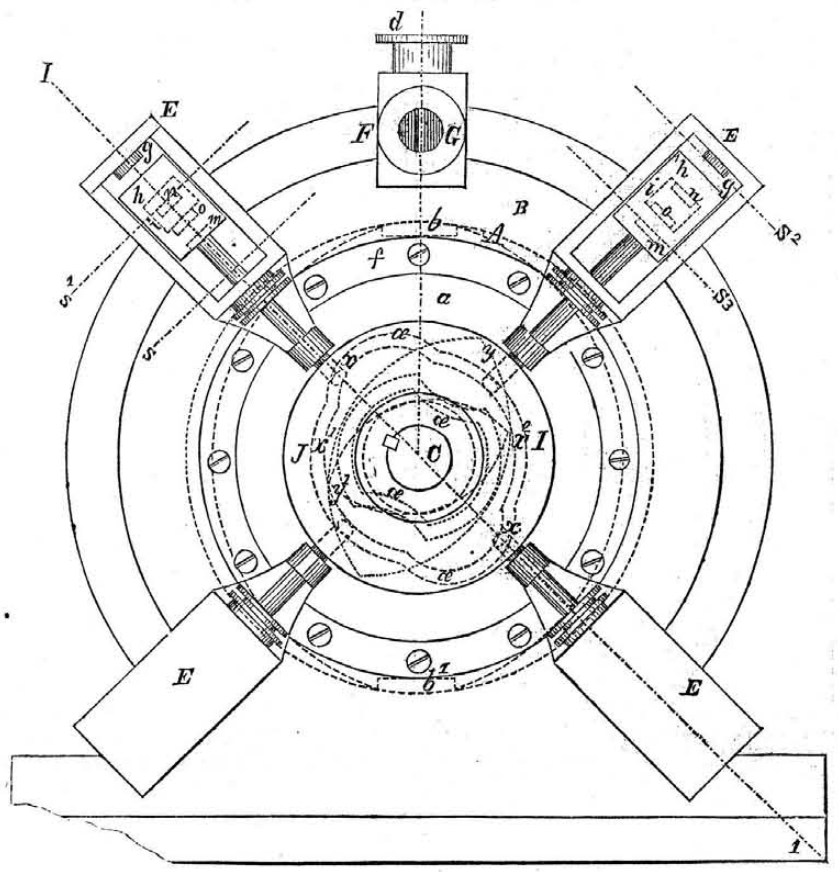
The revolving piston or wheel, A, is circular at its sides, *a*, and of the same diameter as the cylinder, B, in which it moves, but is made with a steam groove or channel between either side so as to give to it the shape of a conic section, resembling an ellipse, the extremities of the transverse diameters of which are formed by packings, *b b'*, of the same exterior curvature as the interior rotundity of the cylinder.

This elliptic piston, A, is firmly keyed to a center driving shaft, C, and is caused to revolve by the pressure of steam on its edge. Four sliding radial abutments like c' c^2, are arranged round the stationary cylinder, B, and severally act in their turn as stops in he elliptic groove to confine the steam in between them. These abutments are packed to prevent the passage of steam by or around them, and are forced inwards by a pressure of steam on their back or outer ends, and radiated outwards by the elliptic piston as it revolves. Steam is introduced by a nozzle, *d*, to a jacket, D, which encompasses the cylinder and conducts the steam to the several valve boxes, E, and to the outer ends or backs of the abutments. The valve boxes, E, are four in number and are arranged round the cylinder in the same radial lines as the abutments. A circular groove is cut round the periphery of either circular side, *a*, of the piston. In this groove a packing, *e*, is inserted, and is caused to project into a groove in the cylinder to prevent leakage of steam from either side of the revolving piston, an outer ring, *f*, made adjustable by screws serving to tighten up either packing as occasion requires.

The valve boxes, E, are openly exposed to the steam so as to be constantly filled with it, the communication between the steam jacket and the valve boxes being established by passages, *g*, from a chamber at the back of the valve boxes. These valve boxes are provided with slide valves, *h h'*, the motions of which are radial to the driving shaft, as indicated by the lines, *s s'*, for the travel of the engine in one direction and lines, s^2 s^3, for its travel in the opposite direction, the said lines representing the position of the forward and back edges of either valve at a relative position of the piston to them. These valves are of the D-shaped kind, having a cavity, *i*, within them which serves to conduct the steam from the cylinder by upper and lower inlets and outlets, *m n*, to the exhaust pipe, F, by a central outlet, *o*. The ports, *m n*, of the valves communicate by extension passages, *r u*, with the interior of the steam cylinder on either side of the abutments—only one of these ports in either valve acts as an inlet and the other as an outlet, either one of such so operating according to the direction of the engine's travel, the sliding of the ends of the valves and of the edges of the exhaust cavities over the several ports serves to admit, shut off, and exhaust the steam much in like manner to the ordinary action of slide valves. The exhaust pipe, F, connects with the several valve boxes and is furnished with an escape branch, G.

To give the requisite action to the valves they are made with a lap so as to shut the exhaust passage before the opening of the steam port, as the extremity of the transverse diameter of the elliptic piston approaches or arrives at the opposite valve. Thus when the packing, *b*, of the piston arrives centrally (when the engine is running from left to right at top) at a certain line, the port, *n*, communicating with the exhaust, *u*, on the rear side of the said abutment, *c*, is shut so as to retain the steam in the cylinder in the rear side of said abutment, while the piston passes, and to assist it in passing the abutment. And when the said packing, *b*, passes further on in its revolution, steam is admitted by the port, *m*, through the passage, *r*, and it presses on the said piston packing till it moves still further on, when the steam in the said passage acts upon the wheel to propel it, the steam port being full open till the piston passes still further on, and is then closed simultaneously with shutting off the steam that comes through inlet, *r*. The exhaust passage, *u*, of valve, *h*, is

SALOMAN'S ROTARY ENGINE.---Fig. 1.



then opened to let the steam escape in the rear of abutment, *c*, as its further retention would cause it to press upon the wheel in an opposite direction to its motion. A similar action takes place with the next valve, *h'*, as the packing, *b*, of the same piston approaches and passes it, the steam admitted by the passage of the previous piston being retained to act expansively in propelling the piston from the point where the steam was shut off by *h*, to the point where steam is admitted by the next valve to continue the propulsion, and so on for each valve in succession, each two opposite valves being similarly operated, and simultaneously, so as to avoid counter-pressure on the driving shaft, and obtain a large propelling area on opposite sides of one wheel, thus economizing space, and avoiding irregular and lateral strain.

Figure 2.

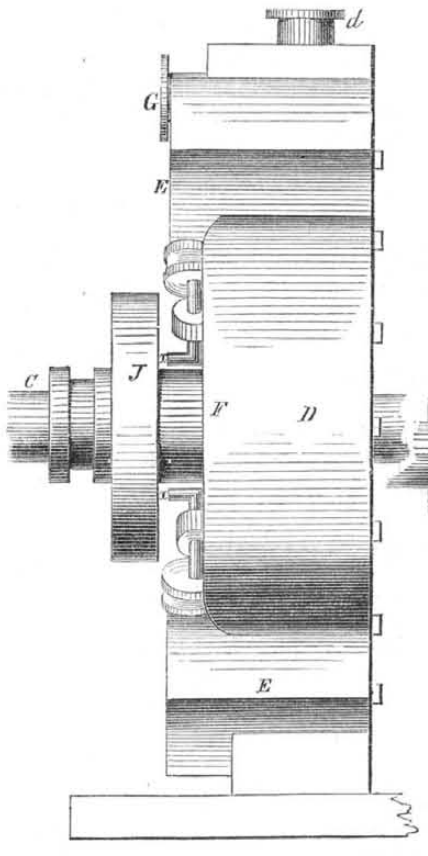
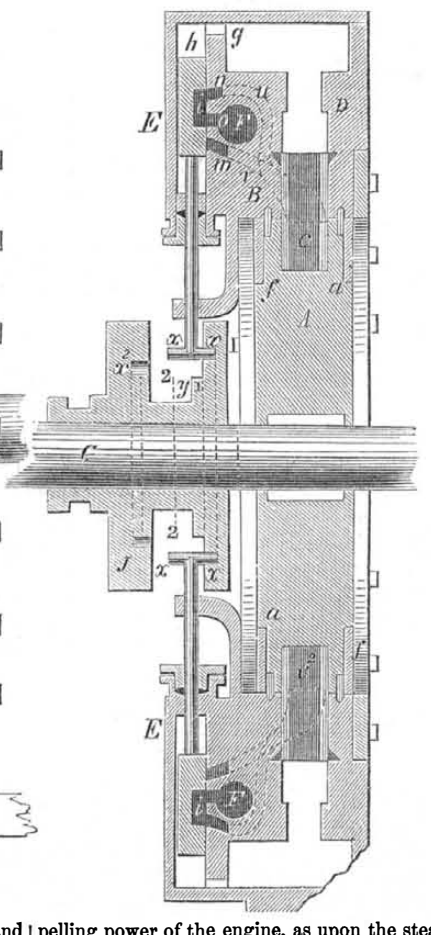


Figure 3.



By the specified arrangement and operation of the valves, the steam it will be observed, is worked to a large degree expansively without materially affecting the uniformity of the propelling power of the engine, as upon the steam commencing its expansion, the propelling area of the piston exposed to it begins to increase, and upon the steam becoming considerably expanded, and at the point when the piston area exposed to the expanding steam is beginning to diminish, the next inlet valve is opened to the admission of fresh steam at full pressure, and until sufficient area of the piston is exposed to the steam furnished by that inlet to ensure uniformity of action, the expanding steam in rear of the abutment continues to assist the wheel as it previously did, but to a greater degree, when the piston packings were passing the abutments. The gradual and slight radial action of the abutments which the elliptic form of the wheel produces will obviate the jar and uncertainty consequent upon the general action of such devices, while as the abutments form the only radial sliders, they are less liable to stick or wear than if having a revolving in addition to a radial action. The contrivances by which the valves are operated, as described consist of revolving cams, I J, united on their inner faces and fitted on a feather sliding key on the engine shaft, which should be supported in suitable plumber-blocks or bearings on either side; these cams are grooved on their inner faces, and the valve stems are made with a projecting stud, *x*, on either side, which fits into the groove of either cam according to the direction the engine is designed to travel, risers or set-offs, *œ*, in the grooves, x' x^2, serving to rise and fall the several valves at the required points to produce the specified opening and closing action of the valves. The one cam, I, has its groove and risers at such a distance from the center of the shaft as to cause the inner port of the several valves to be the inlet for the steam whereby the engine will run from left to right at the top, while the other cam, J, has its groove and risers pitched to make the outer port the inlet for the steam, the radial set or distance of the valves from the center of the shaft thus being altered accordingly as the valve rods are in gear with either cam, and as the two cams are united, the engine may be reversed by simply sliding the double cam by clutch or otherwise, so as to throw either cam into gear with the valves as required, and to facilitate the transfer of the valve stem studs to the grooves of their respective cams; the one cam, J, is made with an elliptic recess, *y*, while the other cam, I, has a raised ellipse, *y'*; the edges of this recess and ellipse serve to guide the studs of the valve stems into either of the cam grooves, x' x^2, accordingly as the said recess or ellipse is thrown into gear with the stem studs by sliding the double cam on the driving shaft. Any other arrangement, however, of operating gear for the valves may be used, and any other suitable form of valves employed.

Mr. Saloman formerly resided in Cincinnati, where he constructed an operative engine propelled by carbonic acid gas, for which he also obtained a patent. The sensitiveness of this gas to heat, when reduced to a fluid, is well known, and when this was first discovered, great hopes were entertained from it, to supersede steam. Brunell, the famous French-English engineer, constructed a carbonic acid engine, but it failed in his hands, simply because although this acid in a fluid state is so sensitive to heat, yet it is as difficult on the other hand to convert it into fluid, which is necessary for its economical use. We understand that Prof. Saloman has made a discovery in chemistry, whereby he effects this object cheaply and quickly, and by which it is said his carbonic acid gas engine will be rendered eminently successful.

More information may be obtained by letter addressed to him at his residence, Bladensburgh, Md.

Improved Steam Boiler.

P. Sweeny of the city of Buffalo, N. Y., has applied for a patent on an improvement in steam boilers, which consists in placing within a boiler a cylindrical or annular casing containing sand, or any other good non-conducting substance, said casing dividing the interior of the boiler, so as to form a central water cylinder communicating at the bottom with an external annular water space. The external water space is exposed to the heat of the fire in a very thin stratum, so as to generate steam rapidly, and keep up a quick circulation from the central water space or chamber to the outside hot water chamber.

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Scientific American.

NEW YORK, JUNE 10, 1854.

Fire-Proof Building Stone.

The great number of destructive fires with which New York and other cities have been visited during the past year, and by which so much valuable property has been consumed, has naturally led to an inquiry as to their causes, and the best means of preventing them. It is our opinion that many of these fires have not been caused by accident, but design—acts of incendiarism—for plunder or other purposes; still, were it not owing to the combustible character of our buildings, conflagrations would neither be so numerous nor destructive in our country. The only sensible remedy for the prevention of large fires in cities, in our opinion, is to improve the character of our buildings. Now we must say that although great improvements have been made in the buildings recently erected, still these relate more to appearance than real solidity. Thus, for the fronts of buildings, as a substitute for bricks, thin slabs of brown freestone or marble —like coats of veneering—are employed for facing, while in the interior as much timber as ever is employed. The fronts of many new stores are supported entirely from the ground-stories, on slender cast-iron pillars. Such stores, if they take fire when filled with goods will come down with a terrific crash, for these pillars will expand so much as to be thrown from their perpendiculars. The side and back walls of too many buildings, are put up with bad mortar and as bad brick; in fact, we believe the majority of the buildings in our city are defective in both materials and construction. It is time that some determined general move was made to effect a radical reform in city buildings. But in what shall that reform consist? Shall it be only in thicker walls and stouter columns? This would be an improvement certainly, but we must go further than this. The common materials used for the walls of buildings are brick, marble, granite, and sandstone. Granite is not a good material to be used for pillars to support the fronts of stores, as it explodes into fragments when heated, and water thrown upon it. Marble is too expensive to come into general use, but as it is a beautiful material, and in some respects superior to granite, it is oftentimes used in building patchwork fronts, by placing slabs only about four inches thick against a thin brick wall. Brown stone is cheaper than granite or marble, and is now more extensively employed. Some objections have been urged against the use of this material, such as its porosity, whereby it is liable to absorb moisture, freeze, and fall off in scales; still it is a beautiful and excellent building material, and when used in large blocks makes a fine structure. Other new varieties of stone have been recently introduced into our city, among which we have noticed the *Caen* stone from France. It is of a light yellowish color, looks very well, and is easily worked, but how it will stand our severe and changeable climate, we cannot tell. Another stone recently introduced into our city, is the variegated freestone from the steatite beds of Middlefield, Mass. This stratum of stone was recently examined by Prof. Hitchcock, with a view of ascertaining its extent, and he has announced that for building purposes, the supply is inexhaustible. The company that own this extensive steatite bed have erected works in this city, for the purpose of working and introducing it as a building material, its qualities (under the name of soapstone) being well known for resisting the action of heat. One house is now being erected in Sixteenth street, with a front of this material. Sensible of the importance of good building materials, we sincerely desire that the best, and only the best, should be used in this and other cities. It would also be one of the greatest boons conferred upon our people, if the best quality of such materials could be combined with *cheapness*. This stone is easily worked, and as its beds are inexhaustible, we hope and trust that the company named will yet be able to furnish it at as low a price as brick. Our object, however, at present, is principally to direct attention to it as a new building material. If it is superior to all others, it should supersede them all. Its fire-proof qualities are well known, and we can heartily recommend it for lining the interior of buildings—floors, side-walls, and ceilings. No other material, we believe, is equal to it, for rendering the interior of buildings, fire-proof, and it is from the inside of buildings where all danger is to be apprehended. We do not like its color so well as that of drab sandstone, marble, or granite, still it is a beautiful building stone, and as it is stated to be weather as well as fire-proof, we hope its claims for outside building purposes, will meet with general attention.

For buildings designed to be the depositories of valuable archives,—such as the Historical Library in this city, and our Congressional Library at Washington,--steatite would, if properly used, make the various apartments as fire-proof as our best safes, while the outside, being composed of the variegated freestone—a harder quality, resisting the action of the elements—would render such collections almost absolutely safe. For Treasury Buildings, the Assay Buildings, and for the various purposes where fire-brick are now commonly used, steatite would be a durable material, as is shown in its use in the furnaces and doors of the Collins' steamers, and in some of the large sugar refineries, of this city. Specimens of this stone may be seen, at the Metropolitan Soapstone Company's Works, in West 13th street, near the North River, where may also be seen all the varieties for both fire and building purposes.

Causes of Marine Disasters.

A correspondent in the "New York Daily Times," of the 29th ult., attributes the recent heavy marine losses to "the over-sparring of our modern-built clippers." He considers that there is no necessity for such vessels carrying so large a quantity of sail, and that their top hamper is notorious. All this may be true, but the question to be asked is, "were there more modern-built clippers lost during the past stormy season than other kinds of vessels?" There was not, we believe.

The operative ropemakers of Brooklyn, Williamsburgh, and Bushwick, L.I., where there are quite a number of rope factories, have published a circular in which it is stated that the loss of a large portion of the vessels which were recently wrecked on our coasts, was caused "through the insufficiency of strength and capacity of the cordage composing their rigging." Instead of using American hand-spun yarn, ropes and cordage have been made in many of the manufactories from Russian hand-spun yarn, much of which had been kept in stores, and packed in the holds of vessels, for months and perhaps years, until it had become defective in strength from dry-rot, although bearing a tolerably good outside appearance. It has been customary with manufacturers to place this yarn in the center and cover it with American yarn, spun from Russian hemp.

It is greatly to be regretted that any yarn but that of the best quality should ever be used for the purpose of rope making. Of course we do not know whether any of the recent marine losses can be attributed to bad ropes or not, but one thing we do know, that bad cordage on the rigging of sailing vessels, is like bad machinery on board of steamships. Upon no consideration whatever should bad cordage be used, and to manufacture ropes from bad yarn—covering up the defective strands with good yarn—is a practice which should at once be condemned and abandoned.

Models of New Inventions.

We are almost daily receiving models by express—*expenses unpaid*—without any indication of their origin; some of them have laid in our office over three months, without any attention, simply because we know not to whom they belong. Inventors who forward models to our address should not neglect to attach their names and address to them in all cases, this will insure a certainty of attention; they are also required to pre-pay express charges, or provide for them by sending an amount sufficient to indemnify us against loss. We shall feel justified in refusing to receive models unless our reasonable requests are complied with.

The Scientific Stair Builder.

We have recently had the pleasure of examining the drawings for a new work soon to be published, on "Stair Building," by Robt. Riddell, one of the most accomplished and experienced stair builders in Philadelphia. It will contain 40 large plates and about 200 figures, and will embrace much mathematical and scientific knowledge, reduced to such simplicity of rules for practice, that any workman will be able to instruct himself from it, so as to construct hand-railings upon correct principles. The author has devoted years of labor and study, to produce a work that shall be a perfect and simple guide to Stair Builders, and at the same time, be also eminently useful to architects, house-builders and those who construct metal stairs—in fact, every person connected with stair work. The object of the author, in a distinctive sense, has been to produce a work so true and plain on the subject, that those who study it, will not have to spend their time in pondering over obscurities in an unprofitable search after the truth, but will be able to save their time and inform themselves pleasurably in acquiring correct information. Having seen the drawings of this work, we can speak in terms of the warmest praise respecting their character. Operative stair-builders may expect, in the course of a few months, to have a work on this subject, which will be a great benefit to them, and a credit to its author.

The Remington Bridge.

A correspondent of one of our daily papers, describing what he saw on his journey between this city and Quebec, mentions the Remington Bridge at Troy, N. Y. "There," he says, "I had a change of cars and a ride across the Remington Bridge. I saw the first model of this bridge, which that clever, but I believe unfortunate, American built. It was erected in the Surrey Zoological Gardens, London, and thousands passed over it daily. It spanned a small stream some thirty feet wide that ran through these grounds, and had no intermediate support. It swayed with every step, and people could scarce be brought to believe that a few thin slips of deal could afford support to the burly citizens and citizenesses that crossed and re-crossed every moment on the holidays. This model was then the source of much controversy among scientific men, and Remington himself had a most unpleasaut correspondence with a former employer, which redounded to the credit of neither. That his invention met with public approbation, however, the bridge at Troy testifies."

Now this is the first time that we ever heard of a Remington Bridge at Troy, N. Y., and some person must have imposed on this English traveler. We believe there is not a single Remington Bridge in existence in our country.

Patent Case.

An Important Decision.—In the case of McCormick versus Seymour & Morgan, in the Reaping Machine case, which was tried in the Circuit Court of the United States for the Northern District of New York, in this city, in October, 1851, and in which the plaintiff obtained a verdict of over $17,000, the Supreme Court of the United States has, on writ of error, reversed the judgment by a vote of 3 to 4, and decided, first, That where a patent is for *a part* of a machine, the rest of the machine being public property, the patentee is entitled to recover damages only for the value of that part, and not for the value of the entire machine embracing that part; and, second, That where a defendant infringes a patent, by making and selling the patented thing, the patentee is entitled to recover as damages, not the profits of manufacturing the patented thing, but only the patent fee for it,—in other words, a fee to the inventor or assignee for the use of the patent.

A New Disinfectant.

A Frenchman by the name of Peter Georget has recently arrived in this country with a new, and what seems an important chemical invention in the way of a Disinfectant for purifying gutters, out-buildings, etc. We witnessed an exhibition of the invention, a few days since, and it accomplished a wonderful result in a very short time by entirely removing a stench which prevailed before, to a sickening degree. The Inventor has taken foreign Patents for his discovery, and came to this country with a view of taking a patent here, but to his disappointment he finds the Government fees alone are $300, which is a sum exceeding his means, and he now asks the public to investigate his invention with a hope that some one will advance him sufficient money to secure his patent in this country, and aid in the introduction of the invention for a share of the profits. Mr. Georget may be seen at the Union Hotel 94 Greenwich st.

Crystal Palace Notes.

The Crystal Palace is beginning to attract more attention as the season advances in cheerful warmth. As it has been arranged under its new Directors, a great improvement is observable in every department.—More taste, skill, and care are displayed, hence the confusion last year, as a disagreeable consequence in hurrying on the work and placing the articles, has given place to order, neatness, and harmony. The clumsy equestrian statue of Washington, which occupied the center of the building, has been removed to a less conspicuous place. But another statue, as totally devoid of grace and beauty—a tall masculine Goddess of Liberty—has been placed in as prominent a situation, to show that changes in some cases, are no improvements. The machine arcade is now well arranged, and in good running order.

The *great* majority of the machines now on exhibition are the identical ones which figured there last year, so that those who had no opportunity of visiting the Palace in 1853, but who may be able to do so in 1854, will not be much, if any, behind their predecessors, in seeing all that was eminently worthy of examination from the day the exhibition was opened to the public, till the present day.

Cigar Machine.—As the question of making cigars by machinery is now engaging considerable attention among tobacco manufacturers and cigar makers, a machine of Mr. Prentice, to supersede hand labor, has recently been placed in the East Nave, and for simplicity of construction and arrangement, it is worthy of attention. We were informed that a girl had made with it 18 in one minute. It does not finish a cigar, but leaves a part to be completed by hand; it merely carries the leaves of tobacco—which are fed into a narrow recess by hand in the proper quantity, cuts them into the proper shape, and delivers them to the hand of the attendant to put the twirl on the end, and thus close and finish the cigar.

Hoisting Platform.—A new and excellent platform elevator, by Mr. Otis, of Yonkers, N. Y., has also been recently placed on exhibition. It is worked by steam power, and operates like some of the elevators used in cotton factories. It has a plain platform, which runs up and down on guides, and ships its own belt on the pulleys, so as to run down when it reaches the top of the fall, and runs up again when the platform comes down. It is self-acting, safe, and convenient.

Whaling Guns.—Some very well finished guns for shooting harpoons, have been placed in the English Department. They are mounted on swivels—like jingals—on the bow of a boat, and look as if they could do some execution upon the monsters of the deep. The American whaling guns that we have seen, are designed for shooting from the shoulder, and in this respect are more convenient than those from England.

We shall from time to time continue to present notes on the new machines and objects of interest that have recently been or will yet be introduced into the Crystal Palace. No person should lose an opportunity of visiting it, for assuredly it is well worthy of attention. The price of admission being only half, (25 cents) of what it was last year, no person who visits New York, can plead inability to visit this great museum of art, machinery, and industrial products.

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[For the Scientific American.]

The New Steam Frigates.

It is annonnced that Chief Engineer Martin is going to Europe to examine naval machinery, with a view of introducing useful improvements in the construction of the new steam frigates ordered to be built. This move appears to indicate a determination on the part of our naval authorities to produce something excellent, and to do justice to the progressive spirit of the age. The following remarks are respectfully submitted to the consideration of those who will be charged with the planning of the machinery and boilers.

The great success of the Collins' steamers appears to be principally owing to the great evaporative power of the boilers and to the excellent model of the hull, two points in which the Cunard steamers are inferior. The general plan of engines is the same in both lines, and I believe the expansive action of steam is made use of to nearly the same extent. Nor is there a material difference in the pressure of steam carried; the consumption of coal of the Cunard line I have not been able to ascertain. The power of the "Arctic," with 95 inch cylinders, 10 feet stroke, cut-off at 4 feet 4 inches, 30 lbs. pressure in the boiler, 28 lbs. in the cylinders, 4 lbs. vacuum, 14 revolutions per minute, may be rated at 1645 effective horse-power, one h.p. equal to 33,000 lbs. raised one foot per minute. The average speed of this vessel, during six voyages, according to Mr. Isherwood, was 13 4-10 miles (statute,) consumption of coal per voyage 946 tuns, and per hour 7,980 lbs. This makes the consumption of 1 horse-power per hour 4·85 lbs., really a very creditable result. The average evaporative power of the boiler is stated at 7½ lbs., of water of 110° by 1 lb. of anthracite. Looking at these facts, there appears to be left but little room for improvements in the way of efficiency and economy. And this is the opinion of many professional men, *such* men as would never have achieved the above results, had *they* been the performers.

It is to be regretted that the old clumsy mode of feeding sea-water was adopted in the Collins' line, while such an excellent apparatus as Pirsson's Condenser could have been applied. This condenser is bound to work if properly constructed. Here, then, is one opening for a very essential and highly important improvement in our new steam frigates.

I shall now suggest another, but promise nothing new; I only desire to draw attention to the old, well-established, and well known fact of the great economy produced by the expansive action of steam. I wish to see the principle of the Cornish Engine successfully carried out in these new frigates. I propose to carry steam of 60 lbs. pressure, or say 45 lbs. above the atmosphere, in place of 15½ lbs., the practice of the Collins' line, and to cut-off at one-eighth part of the stroke in place of half stroke. And in order to produce a *uniform* rotary motion, and to keep down the size of cylinders, I prospose three cylinders in place of two, to work three cranks set at an angle of 120°, in place of two cranks set at an angle of 90°. This plan contemplates a radical change in the old mode of construction; it may appear rash and venturesome to the timid and to the *let-good-enough-alone.* But nothing short of a *radical* change in the plan of engines and boilers will produce a *material* advance upon the great success of the Collins' steamers. I do not discuss the model, because I am not a competent judge on that point. Steam engines and boilers are my province, where I may venture an opinion. I feel satisfied that, aside from the model, the above plan, if well carried out, will, in connection with my new boilers, bring steam navigation to perfection at once. I flatter myself that this opinion will be concurred in by all those who will candidly examine the question, and who have made themselves competent by study and experience. It is only recently that the Cornish Engine has attracted much attention outside of the small district where it has been an established fact for many years. The astonishing labor so economically performed by that great pumping engine which is draining the Harlaem Lake in Holland, has been the result of expansion.

The rule for calculating the effect of expansive action is, divide the length of stroke by the length of the cut-off, the hyperbolic logarithm of that quotient, added to 1, will represent the effect of the whole expansive action, the force of the full stroke at full pressure being represented by the quotient. I propose to cut off at one-eighth part of the stroke. Now let us examine the relative effect of expansive action at one-half, one-quarter, and one-eighth of the stroke.

The hyperbolic logarithm of 2 is	0·693 . . .
" " 4	1·386 . . .
" " 8	2·079 . . .
This gives the effect of half stroke	1·693 . . .
The full stroke being represented by	2·000000
The effect of quarter stroke is	2·386 . . .
" full stroke being	4·000000
" cutting off at ⅛	3·079 . . .
" full stroke being	8·000000
Now let us represent the effect of full stroke with full pressure by	1·000000
The effect of half stroke will be	0·846 . . .
" quarter stroke	0·596 . . .
" cut off at one-eighth	0·385 . . .
And also, if 1 tun of coal at full st oke produces an effect represented by	1·000000
do. cutting off at one-half	1·690 . . .
do. " one-quarter	2·386 . . .
do. " one-eighth	3·079 . . .

And further, if a voyage to Liverpool, using steam without expansion, will consume 1200 ts.

The consumption at half stroke will be	700 ts.
" quarter stroke	500 ts.
" one-eighth stroke	400 ts.

In round numbers, therefore, by cutting off at one-eighth part of the stroke, we will make this voyage with 400 tuns, while we should consume 500 tuns at quarter stroke, 700 tuns at half stroke, and 1200 tuns at whole stroke. Here then is a wide field open, very wide indeed! I hazard very little when I predict that in less than ten years, our voyage to Liverpool in vessels of 3000 tuns burden will be made inside of ten days, and with less than 400 tuns of good anthracite coal, and this will be achieved alone by expansive action, by three cylinders and by my superior mode of combustion and generating steam, independent of improvements, which may result from greater capacity and superior model, and perhaps a superior mode of propulsion.

The above figures show the theoretical effect of expansion, which of course will suffer a reduction in practice. Short stroke comparatively, say not exceeding 10 feet, but wide cylinders, well encased by 3 or 4 layers of felt, which will keep them warm and prevent the reduction of the expanded steam, will bring us nearer to the theoretical result. But the whole of that result can be made good by a superior combustion and evaporation.

The application of three cylinders and three cranks will insure a more uniform rotary motion than is now obtained by two cylinders, cutting off at half stroke.

Objections will be raised on the score of safety, to carrying steam of 45 lbs. above the atmosphere. These, however can be fully answered. I should prefer a higher pressure, if the great increase in the weight of the boiler would not balance, to some extent, the increased economy resulting from the use of higher steam. The difficulty of securing tight joints and preventing leakage and waste, is also another weighty argument against high pressure, such as 100 lbs. and more. As regards safety, if we take a common-sense and practical view of the matter, it will certainly be plain enough to every person, that if I provide a strength three times the ordinary allowance for sea boilers, carrying 13 lbs. above the atmosphere, I shall be just as safe carrying 45 lbs. pressure above the atmosphere. But can this be done, and safely and well? No one will deny it who is a practical worker in iron, and who is at all familiar with steam boilers. Our steamboatmen in the West laugh at the idea of 45 lbs. being called high pressure. They have frequent explosions, and are altogether reckless in the management of steam, but there are also to be found intelligent and careful men, who are conscious of the great danger, and who keep within the bounds of safety. The packets on the Ohio river have uniformly carried, before the new law came in force, 180 lbs. per square inch upon the safety valve, in boilers of 42 inches diameter, of one-quarter inch iron, when new. This is equivalent to an absolute force of 15,120 pounds per square inch section of iron, or scarcely one-third of the ultimate strength of good boiler iron, allowing for rivetting. The contemplation of this fact, when traveling on those boats, is well calculated to cause a little uneasiness. The fact that boilers made of good iron and well managed, have run on the Ohio river for years without accident, only shows how much good iron may be depended on. In marine boilers a very large allowance of strength is absolutely necessary, none but the best material should be used, and double rivetted throughout.

If great power and economy are all-important in a commercial steamer, they are still more so in a vessel of war. Long cruises cannot be undertaken with a propelling apparatus that wastes the fuel; strict economy is of paramount importance. In ordinary running, expansive action should be made use of to the fullest extent; the fuel should be saved to enable the vessel to keep the sea or to meet a superior enemy and beat him successfully. In place of cutting off at one-eighth of the stroke, cut off at half stroke in time of an action, this will more than double the power. The boilers of course should have capacity enough to keep up a supply of steam for a short time. A few rapid movements, which will give the steamer a decided advantage over his slow moving enemy, may decide the whole action.

In case of an accident to one of the engines, the chances are in favor of three cylinders. The damaged one can be thrown out of gear, while the voyage is continued with the other two cylinders, which will give a more uniform motion than one single cylinder.

The cylinders of the "Arctic" have 95 inch bore and 10 ft. stroke, this makes the area of the piston 7088 superficial inches, and the pressure at 19 lbs. mean pressure per inch 134,672 lbs., and the momentum of a 10 feet stroke 1,346,720 lbs. Assuming the pressure of 52 lbs. effective per inch, we find the momentum of one superficial inch of piston, acting at full pressure throughout the stroke of 10 feet, 52 ×10=520. To produce the effect of one of the "Arctic's" cylinders, an area of piston will be needed, equal to 1,346,720÷520=2667 superficial inches. And in order to cut off at one-eighth of the stroke, the enlarged size of the piston will be found $2667 : x :: 0{\cdot}385 : 1{,}000$, or $x=6927$ superficial inches. Or a piston of 6927 supeaficial inches, equal to 94 inch diameter, carrying 52 lbs. effective pressure at the commencement of stroke, and cutting off at one-eighth of the stroke, will produce the same effect, theoretically, as a cylinder of 95 inch diameter, with a pressure of 28 lbs. at the commencement of the stroke, and cutting off at 4 feet 4 inches.

Using three cylinders in place of two, we shall find the required size of the pistons to be $6927 \div \frac{3}{4} = 4618$ superficial inches, or 76¾ inches diameter and 10 ft. stroke. The strength of cylinders and balance of machinery must be increased over that of the "Arctic" to meet the greater pressure of the steam, when admitted.

JOHN A. ROEBLING, Civil Engineer.

Niagara Suspension Bridge, May 22, '54.

Yellow Fever.

At a meeting of the "National Medical Association," held at St. Louis on the 3rd ult., D. Linton made the following remarks on the yellow fever.

"This disease was called the European's fever, or stranger's fever; but it was the northerner's fever. Those principally stricken by it were persons emigrating from a cold northern climate to a warmer. The blood of the northerner is rich—he eats more and drinks more. His food, too, is richer. Going south he retains his full habits, and subjects himself, in consequence, to attacks of billious fever; should this billious fever become aggravated, it might prove yellow fever.

Southerners eat less, and, as a general thing drink—or should drink—less. Their blood is in better condition to withstand the tropical heat. Northerners could acclimate themselves to a southern latitude, without catching the yellow fever. If they prepared their systems by diminishing the quantity of food and drink, and in a measure changing the quality, and f being in the South, they avoided the great heat of mid-day, kept out of the night air, and availed themselves of the other precautions incident to the system, they might deem themselves almost safe against the attacks of yellow fever. In prisons at the South the yellow fever rarely appears. The reason for it is, that the prisoners are fed moderately, and are in comparatively cool places. They follow out by compulsion, the mode of life exactly which prudence should suggest to the northern visitors to adopt. The mode of life, in a word, is the principal incentive to the disease called yellow fever."

Gas on Books.

"We have been told," says the "Evening Post," "that the principal reason why the Astor Library is not opened at night, aside from the generally thin attendance at libraries in this city at evenings, is the destructive effects of gas upon the books. The London booksellers have found that gas is so ruinous to their stock that they have almost uuiversally discontinued its use; and in those cases where it is provided with an apparatus for carrying all the discharged gases out of the apartment. What is worse, it is found that the gas is most destructive to the finest kinds of binding, and that the Russian suffers more than any other."

Pimples and Razors.

MESSRS. EDITORS.—Having tried several remedies for the cure or removal of pimples on the face, which were published in your valuable paper, but valuable as I have found it on everything else, it failed me in this. I therefore concluded to try a remedy of my own. It is as follows: Never touch your face with a razor, and my word for it, the pimples will soon disappear. Shaving I believe to be the cause, and of course to effect a cure we should remove the cause. J. H. BARTON.

Philadelphia, Pa., May 29, 1854.

[But how will this practice affect those who have no beards, and yet are troubled with pimples? The truth is, pimples are due to more than one cause, and require more than one method of cure.

Silver in Alabama.

Great excitement is said to exist in Tallapoosa, Ala., in consequence of the silver mines existing in the southwest portion of that country. Silver has been known for years to exist there, but the people have just found how to separate it from the ore. The other day, says the "Dadeville Banner," a company extracted sixteen pounds of pure metal in a very brief time. "This set the country in a rage."

New Wheat.

We learn by the "Savannah Courier" that Seaborn Jones, who resides a short distance below Augusta, Geo., has cut the earliest crop of wheat on his plantation in that State. The yield is less this year than in 1853, owing to late frosts. A crop of corn is to be raised after this early wheat, thus making two crops from the same land in one year.

Crystaline Gold.

The "Charleston Mercury" says:—"We have been favored by Prof. Hume, State Assayer, with an examination of one of the rarest of mineralogical curiosities, viz., native gold in a distinctly crystalline form. The specimen weighed seventeen pennyweights, and was contained in a collection sent to his office for assay. The crystals were octahedral, and were very clearly defined.

The "Atrato," the largest paddle-wheel steamer in the world, made her first trip from St. Thomas to Southampton, a distance of 3600 miles, in twelve days and twenty hours, averaging nearly 300 miles a day.

Capt. Barclay, the first man who is recorded to have walked 1,000 miles in 1,000 hours, died lately in Scotland at the age of 76. He was an enthusiastic farmer, and traveled through the United States, a few years ago, making agricultural observations.

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TO CORRESPONDENTS.

J. P., of N. J.—If the question had been asked, "how much space will be passed over by the nether perpendicular point of a wheel, from that of the upper point, in one fourth of a revolution," we wonld have answered according to your explanation, but that was not the question. Every question asked should be unequivocally clear.

E. B., of Ala.—If you heat your steel in a bath of molten lead, you can temper it without scaling. You can cement rock with a cement of white lead and ground glass. We cannot give you information where to obtain the machinery you speak of.

A. S., of Albany.—Nothing but bituminous coal is used in England for burning brick. We believe that F. H. Smith, of Baltimore uses anthracite.

E. A. H., of Ill.—The barometer is indeed subject to the two variations you speak of. You will see an article on the subject in Brande's Encyclopædia, which we recommend you to consult. It will perhaps give you all the information you desire.

N. C., of Ill.—Your method of constructing saws so as to render them capable of planing and sawing at one operation, is not new, we have been shown the same thing several times.

G. A. Forsgard, Houston, Texas, wishes to procure machinery for sawing a soft kind of building stone which is found in abundance in some parts of Texas, some of our readers can supply him with the necessary information.

P. S. & Co., of Min. Ter.—Your ideas in regard to propellers are erroneous, and have not the merit of novelty. Propellers upon the same plan have been proposed but they could not be rendered efficient, and we would advise you to drop it.

A. M., of Ky.—The general arrangement of your apparatus for feeding paper to presses is different from anything we have ever seen. We question its ability to perform well, this, however, is properly a matter of experiment, and we will not condemn it without more knowledge.

L. W. N., of Mass.—Your wheel would run better if you would curve your buckets at an angle of forty-five degrees, instead of making the blades radial. The pulverized earth which you have sent does not appear to contain any black lead, it is simply a clayey slate.

E. A., of N. Y.—The apparatus you describe for feeding paper to printing presses, contains nothing patentable—the same thing has been applied for by several different inventors.

L. H. T., of Ill.—We do not perceive any novelty in your alleged improvement in propellers, The ideas which you suggest as an improvement are well known and are not altogether sound. You would find it very difficult to hinge paddles and make them sufficiently strong.

S. C., of N. Y.—If we saw the action of the iron bar upon the needle we might be able to give a reason for the attraction and repulsion, but not otherwise.

E. M., of R. I.—Yours will receive attention.

B. W. W., of N. Y.—We do not know about the cheat. We saw such a phenomenon as you describe last week' they are not unfrequent.

E. S. H., of Mass.—We do not know any compound to render timber less liable to break.

L. C. T., of Ohio.—Your plan of changing the points of connection between the eccentric rod and rock shaft, we have seen employed before.

G. Van H., of N. Y.—Yours will meet with attention.

B. W., of Pa.—The correspondence to which you refer, inferred that those reading their articles, would take the natural force of the birds into consideration also.

T. S., of S. C.—The ball to which you refer no doubt caused the late eclipse.

Money received on account of Patent Office business for the week ending Saturday, June 3:—

D. N., of Mass., $250; J. G., of Vt., $30; J. S. W., of Iowa. $25; A. F., of Pa., $30; G. R. W., of Ct., $55; G. O., of N. Y., $30; S. K., of Pa. $15; J. M., af Ind., $30; B. & G., of Pa., $275; L. F. H., of Vt, $25; A. B. G., of N. Y., $25; I. P., of N. J., $30; J. P., of N. Y., $55; S. F. P., of N. J., $20; W. H. H., of N. J., $30; J. J., of N. Y., $25; E. G., of Vt, $30: B. M. & D. W., of N. Y. Y.. $450; L. J. W., of N. Y., $30; M. V. B. D., of R. I.. $25; S. T. P. of N. J., $15.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, June 30:—

J. C. T., of Mass.; A. D., of N. Y.; W. McC.. of N. Y.; J. M., of N. Y.: S. K., of Pa.; L. F. H., of Vt.; C. & L. B. O., of Pa.; J. P., of N. Y. (2 cases.) F. B., of N. Y.; M. V. B. D.. of R. I.; J. J., of N. Y.; J. & J., F., of Ky.: S. T., P., of N. J.; W. H. H., of N J.

A Chapter of Suggestions, &c

PATENT LAWS—The seventh edition of the American Patent Laws and Guide to the Patent Office For sale at this office, price 12 1-2 cents.

PATENT CLAIMS—Persons desiring the claim of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office, stating the name of the patente, and enclosing $1 for fees for copying.

PATENTEES—Remember we are always willing to execute and publish engravings of your inventions, providing they are on interesting subjects, and have never appeared in any other publication. No engravings are inserted in our columns that have appeared in any other journal in this country, and we must be permitted to have the engravings executed to suit our own columns in size and style. Barely the expense of the engraving is charged by us, and the wood-cuts may be claimed by the inventor, and subsequently used to advantage in other journals.

GIVE INTELLIGIBLE DIRECTIONS—We often receive letters with money enclosed, requesting the paper sent for the amount of the enciosure, but no name of State given, and often with the name of the post-office also omitted. Persons should be careful to write their names plainly when they address publishers, and to name the post-office at which they wish to receive their paper, and the State in which the post-office is located.

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THE SEVENTH ANNUAL EXHIBITION—OF THE MARYLAND INSTITUTE—Will take place on the 18th of September next, at the spacious Hall of the Institute, Baltimore. Mechanics, Manufacturers, Artists, Inventors, and others, in the State of Maryland, as well as the country at large, are respectfully invited to avail themselves of the opportunity thus afforded, to display their taste and skill in the collection about to be made. The Maryland Institute is now established upon a footing which enables the managers to hold out stronger attractions than, perhaps, any similar Institution in this country. The central position of the city of Baltimore, and its contiguity to the seat of Government, ensure the most extended facilities for an exhibition of the works of art and mechanical skill, which may be placed in charge of the Institute; and the great care taken in the appointment of suitable and impartial judges to establish the grade in which each contributor is entitled to stand, and to pronounce upon the certificates of merit, give earnest of the desire of the Managers to avoid all ground of complaint in this most delicate department of their labors. The purpose of the Managers will be to make the approaching exhibition one of the most attractive that has heretofore taken place in this country. Their splendid Hall is now complete in all of its appointments, and is admirably adapted, as is well known, to the accommodation and display of the objects of taste and interest, of whatever class or description, which may be entrusted to them by those engaged in the mechanical pursuits. The Board of Managers earnestly invite the co-operation of the mechanics and industrial classes throughout the country, in contributing to the important object they have in view. Circulars with rules and regulations, and any other information in reference to matters in detail, will be promptly given by addressing, post-paid, the actuary of the Institute, Mr. John S. Selby. THOS. SWANN, Chairman; A. Denmead, Thomas Stow, C. W. Bentley, J. F. Meredith, Enoch Pratt, Thos. J. Lovegrove, W. Prescott Smith, Thomas Trimble—Standing Committee on Exhibition. 39 2

FOR SALE—A Telescope, five feet long, four inch object-glass, handsomely mounted, with patent stand arrangements of the latest construction, all of Fitz's manufacture. Also a Hydro-Oxygen Microscope, of Spencer's manufacture, with Drummond Light Apparatus, and specimens, complete for exhibition. The above are all new, and will be sold below the manufacturer's price. Suitable for colleges, seminaries, and exhibition purposes. Address T. M., Sun Office, New York City. 39 1

FOR $1000 EACH—An assignment will be made, (or security given therefor) of one-third the rights patent for England and France, of a breech-loading and self-priming rifle, preventing escape at the breech, simple and durable arrangement and construction, and capable of one shot in five seconds, or one hundred in twelve minutes. U. S. Patent applied for. Addres J. CORWIN, Hackettstown, N. J. 39 5*

PIG IRON—Scotch and American; also English Boiler Plate and Sheet Iron, for sale at the lowest market prices, by G. O. ROBERTSON, 135 Water st. cor. Pine, N. Y. 40tf

A YOUNG MAN—Desirous of a situation as Foreman or Draughtsman in a machine shop, either in the city or country. Can give the best of references as to qualification. Address HENRY A. SNYDER, 306 Monroe st., New York. 1*

J. B. & W. F. POAGUE'S PATENT PLAN FOR HYDRAULIC CEMENT PIPES.—This is the cheapest and most durable piping ever offered to the public, for conveying or elevating water any distance desired, and can be enlarged or diminished to suit the flow or column of water, and the strength increased in proportion. The pipes can be either moulded in the ditch, just as they are intended to remain, or molded in a yard, and when hardened transported any distance. and the pieces united in the ditch by cement mortar. The pipes can be readily attached to the ram or any kind of hydrant. They have been thoroughly tested by a number of persons, and all persons desiring further information, or wishing to purchase rights for any unsold State or counties, can get a printed circular containing directions for constructing and using said molds, with certificates of their utility, by applying, (post-paid) to the undersigned patentees. We are prepared to undertake and execute jobs of piping in this and the surrounding counties. J. B. & W. F. POAGUE. Address Fancy Hill P. O., Rockbridge Co., Va. 38 2*

GWYNNE'S PATENT RE-ACTION CENTRIFUGAL PUMP AND FIRE ENGINE.—Adapted to any situation, unlimited in power, certain in action, permanent in use, and withal so low in cost that they are rapidly superseding all others. Call and be satisfied of these facts at the office and warehouse of UNION POWER COMPANY OF U. S., 33 Broadway, removed from 24, opposite present stand. 38 2*

MACHINISTS TOOLS.—Power Planes 4 to 16 feet long, weight 1,000 to 10,000 lbs. Engine Lathes, 6 to 19 feet long, weight 1,700 to 8,400 lbs., swing 21 to 38 inches. Hand Lathes, Gear Cutters, Drills, Bolt Cutters, Slide Rests, Chucks, &c., of best materials and workmanship constantly on hand, and being built, also the best Grain Mills in the country, "Harrison's Patent." For cuts giving full description of prices address NEW HAVEN MANUFACTURING CO., New Haven, Conn. 38 tf.

ROTH'S ANTI-CHLORINE.—Geo. F. Wilson, Providence, R. I., has been duly appointed Agent for the sale of "Roth's Anti-Chlorine" for the New England States. Persons desiring to obtain licenses for their own use. or to purchase this very superior preparation for the removal of chlorine from bleached fabrics and paper stuffs, will please make application to him. HACKER, LEA, & CO., Philadelphia, Dec. I. 1853. Mr. Wilson's office is at 22 Canal street. third floor. 38 3*

BRASS FOUNDRY FOR SALE—On easy terms, having a good share of business, and a fine location. For further information address box 905, Detroit, Mich. 38 5*

BACK VOLUMES of the Scientific American for sale by Stokes & Brother, Philadelphia. A sett of the Scientific American, from Vol. 3 to Vol. 7, inclusive. Price $2.75 per volume, bound. STOKES & BROTHER, Arcade, Phila. 38 3

MACHINERY DEPOT.—J. W. HOOKER, 36 Lloyd street, Buffalo, N. Y., commission merchant, and dealer in all kinds of machinery, is prepared to fill orders for Lathes, Planing Machines, Drills, Universal Chucks, Car Wheel Borers, Rubber and Leather Belting, Oils, Millstones, Portable and Stationary Engines, Boilers and Machinery generally. 38 4*

CIRCULAR SAW MILLS—The undersigned are manufacturing, and keep constantly on hand.—"Child's Premium Double and Single Circular Sawing Machines." The best machine in use for sawing lumber from logs of all sizes, and warranted capable of cutting more lumber in a given time than any other mill. H. WELLS & Co., 31 8 eow* Florence, Hampshire Co., Mass.

UNITED STATES PATENT OFFICE,
Washington, May 16, 1854.

ON THE PETITION of Richard Montgomery and Lewis W. Harris, of Sangerfield, New York, praying for the extension of a patent granted to them for an improvement in the Mill for Breaking and Grinding Bark, for seven years from the expiration of said patent, which takes place on the 12th day of August, 1854,

It is ordered that the said petition be heard at the Patent Office on Monday, the 24th of July next, at 12o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing. All testimony filed by either party, to be used at the said hearing, must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 14th of July; depositions and other papers relied upon as testimony, must be filed in the office on or before the morning of that day; the argument, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Pennsylvanian, Philadelphia, Pa.; Scientific American, New York; Post, Boston, Massachusetts, and Inquirer, Cincinnati, Ohio, once a week for three successive weeks previous to the 24th day of July next, the day of hearing. CHARLES MASON, Commissioner of Patents.

P. S—Editors of the above papers will please copy, and send their bills to the Patent Office, with a paper containing this notice. 37 3

METALLIC TAPE MEASURES—40 to 100 feet—a new article, metal web; stretches less than any other Tape, well prepared to stand water; well made leather boxes, divided in feet and inches, and links, or feet and tenths, and links; also all steel measures, 33 feet, winding like a Tape Measure into a box. Mathematical Drawing Instruments, Spy Glasses, &c. Our priced and illustrated catalogue sent by mail free of charge. McALLISTER & BROTHER, No. 48 Chesnut st., Philadelphia, Pa. 37 4*

NORTH AMERICAN ROCK DRILLING CO.—Now offer for sale the best Rock Drilling Machine in use. Said machines, with one man and two horses, will do the drilling of twenty men. Address their agent HENRY GOULDING, 37 3* 14 Andover st, Boston Mass.

"KNOW NOTHINGS!"—Startling Developements: astounding, ludicrous, and alarming! Just published, an Expose of the "Know Nothings,"—The Degrees, Signs, Grips, Pass-Words, Charges, Oaths, Initiation, awful Penalties: together with the objects, tendencies, and alarming increase of this Secret Order throughout our threatened land, with striking wood-cut illustrations. Copies will be mailed to any address free of postage. Price—12 1-2cts per copy; 10 copies for $1. N. B.—Our Mammoth Catalogue of books and prints will be mailed to any address gratis. Address STEARNS & CO., Publishers. 37 4 163 Fulton st., N. Y.

LATHES AND PLANERS—Of much approved construction, manufactured and kept constantly on hand, by LEONARD & CLARK, Newburgh, Orange Co., N. Y. 37 4*

TO TINMEN—And Workers in other Plate Metals. For Sale—One of the New York Style of Rotary Presses, which cuts out the blanks and turns up the edge at the same operation. This Press works with great rapidity, and has been timed at the rate of 60,000 per ten hours—geared to work by hand or with power. Sold only because the owners have enough other presses for their work, and for no defect. There are several dies made to fit the press. Price will be made low. Inquire or address No. 78 North front st., Philadelphia. 37 3*

ANASTATIC PRINTING—On a new Principle.—Persons desirous of learning the art of reproducing perfect impressions (equal to the original) from old prints can get full instruction by addressing A. G. S., care of Charles Fisher, 196 Mott st. (rear building), N. Y. Post-paid letters, inclosing $20, will find prompt reply. 37 3*

WOODWORTH'S PATENT Planing, Tonguing, Grooving Machines.—Double machines plane both sides, tongue, and groove at one and the same time, saving one half of the time when lumber is required to be planed on both sides. Large assortment constantly on hand. Warranted to give entire satisfaction to purchasers. JOHN H. LESTER, 37 13* 57 Pearl st, Brooklyn, L. I.

FOR SALE—A valuable India Rubber Patent Right. For further information address FRANCIS D. HAYWARD, 36 4* Malden, Mass.

FOR SALE—By the Baltimore and Ohio Railroad Co., 24 Crate Cars, adapted to railroad purposes, which will be sold at a reasonable price. For further information apply to SAMUEL J. HAYES, M. of M., Baltimore and Ohio R. R. Co., or BRIDGES & BRO., 64 Cortland st., New York. 34 tf.

GRIFFITH'S PATENT VALVE COCKS for Steam Engines, dyeing establishments, or Chemical Works, They are warranted superior to any valve or cock in use. They are easily repaired without taking them from the pipes, they are made any size from 3-8 in. up to 7 1-2 in., either screwed or with flanges. Responsible agents for the sale of these valves wanted in New York. Boston, Pittsburg, and all the principal cities in the Union. The rights to manufacture in the different States for sale. Parties interested will address J. GRIFFITHS, City Tube Works and Brass Foundry, 15 North 7th street Philadelphia. 34 8*

FULTON FOUNDRY AND MACHINE WORKS S. W. corner of Green and Morgan streets, Jersey City, N, J. The subscribers are prepared to contract for Sugar Mills and Mining Machinery of every description. Horizontal Steam Engines of various sizes constantly on hand. All orders executed with promptness. 34 13* FIELDS, BROTHER & CO.

ENGINEERING—The undersigned is prepared to furnish plans for ever description of machinery, water wheels, turbines, and to consult with parties to make experiments and scientific investigations, and to superintend the construction of works. Agent for Mellier's Patent for making White Paper from Straw. VICTOR BEAUMONT, 33 10* Consulting Engineer, 74 Broadway, N.Y.

1854—MICHIGAN CENTRAL R R. LINE,—D. W. WHITING, Freight Agent for Railroad and the enormous new steamers "Plymouth Rock," "Western World," and "May Flower,"—and also General Forwarder, will forward freight of any kind, by any mode of conveyance, to any destination, with dispatch and at the lowest rates; has trucks and machinery and (having been a practical machinist has all the skill necessary) for the safe and expeditious handling of any machine or heavy article, such as Locomotives, Steam Engines and Boilers, Engine Lathes, Church Bells, Safes, &c. Mark packages care "D. W. Whiting, Buffalo;" goods thus consigned take precedence with the above boats in all cases. 32tf

MODELS—Of all kinds made and warranted to answer the requisitions of the Patent Office. Post-paid communications strictly confidential. Address J. G. ARNOLD, Worcester, Mass. 31 10*

NORCROSS' ROTARY PLANING MACHINE. The Supreme Court of the U. S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks, is not an infringement of the Woodworth Patent.

Rights to use N. G. Norcross's patented machine can be purchased on application to N. G. NORCROSS, 208 Broadway, New York.

The printed Report of the case with the opinion of the Court can be had of Mr. Norcross. 36 tf

STAVE AND BARREL MACHINERY—HUTCHINSON'S PATENT.—This machinery, which received the highest award at the Crystal Palace, may be seen there in operation during the ensuing season. Cutting, Jointing and Crozing Staves and Turning Heads. Staves prepared by this process are worth to the cooper from 20 to 40 per cent more than when finished in another way. Applicable alike to thick and thin staves. Apply to C. B. HUTCHINSON & CO., Auburn, N. Y., or at the Crystal Palace. 34tf

KRUPP'S BEST CAST STEEL—Suitable for Mint and Plater's Rollers, also of large size (72x18 inches diam.) for rolling iron, copper or brass. Pistons of Steam Engines, and Shafts for Steamboats, not exceeding six tuns weight in one piece. Also the celebrated Cast Steel Axles and Tire, made from a solid bar without welding. Agents, THOS. PROSSER & SON, 33tf 28 Platt st, New York.

STAVE MACHINERY.—The "Mowry Stave Cutter and Jointer Combined," which received the highest award at the Crystal Palace, is the only machine that ever undertook to joint a stave properly at the same time that it was cut and dressed, without rehandling. One man tends the machine and turns out from a solid block of wood ninety staves a minute, ready for the truss hoop. It is not only the best in use, but for slack work we challenge the world. For machines and rights in New York, apply to CHARLES MOWRY, Auburn. For machines and rights in other parts of the United States, apply to GWYNNES & SHEFFIELD, Urbana, Ohio. 29 tf

MINING MACHINERY—Of most approved construction, furnished by FRED'K COOK & CO, Hudson Machine Works, Hudson, N. Y. 15 6m

JOHN PARSHLEY, No. 5 and 7 Howard st., New Haven, Ct., manufacturer of Machinists' Tools, and Steam Engines, has now finishing off 25 Engine Lathes, 6 feet shears, 4 feet between centers, 15 inches swing, and weighs about 1100 lbs. These Lathes have back and screw gear, jib rest, with screw feed, and the rest is so arranged that the tool can be adjusted to any point the work may require, without unfastening the tool, hence they possess all the good qualities of the jib and the weight lathe; they are of the best workmanship. Price of Lathe with count shaft and pulleys, $155 cash. Cuts, with full description of the lathe, can be had by addressing as above, post-paid. Also four 30 horse power vertical Steam Engines with two cylinders. Price of engine with pump and heater, $800 cash. For particulars address as above. 35tf

$100 REWARD—To the Manufacturers of Bank Note Paper. The Executive Committee of the Association of Banks for the Suppression of Counterfeiting, hereby offer a reward of One Hundred Dollars for the best specimen, in the opinion of the Committee, of Bank Note Paper, of not less than five hundred sheets, which may be submitted to them on or before the 1st day of January next. All paper submitted, except that selected by the Committee, to be returned to the persons submitting the same. J. M. GORDON, Secretary. Boston, Mass., March 31 .1854. 31 15*

SCREW CUTTING MACHINES. with P. W. Gates' Patent Dies—The subscribers keep constantly on hand three sizes of the above-named machines, to wit—No. 1 machine, 10 sets dies and taps from one-half to two inches, $350; No. 2, 8 sets dies and taps, one-half to one and a half inches, $250; No. 3, 6 sets dies and taps, three-eighths to one inch, $150. Cash on delivery at shop. P. W. GATES & CO. Chicago, Ill. 27 13*

HUDSON MACHINE WORKS and Iron Foundry—at Hudson City, N. Y., are prepared to contract for castings for railroads, bridges, buildings, gas pipes and posts, water pipe, cast-iron ornamental floors, cannon, &c. Steam engines and boilers, high and low pressure, sugar mills, Cornish lifting and forcing pumps for mines; stamps, mortars, and mining machinery;—also superior hydraulic pumps and presses, and superior machinists' tools made to order. Especial attention given to the making of patent machines. Orders by mail will receive prompt attention. New York Office No. 18 Exchange Place. FREDERIC COOK & CO. F. COOK, H. McCLELLAND. 27tf

MACHINERY FOR SALE—The following machines are for sale at the "Scientific American" Office:—Alcott's Concentric Lathe, price $25.
Portable Mortising Machine, $20
Bushnell's Iron Drill, $25
All orders should be addressed (accompanied with the cash) to MUNN & CO., 128 Fulton st., N. Y.

WHITE STRAW PAPER—For Newspapers.—A Mellier, the patentee, having established his process at Nixon & Xeinour's Mills, Manayunk, where the paper for the Philadelphia Ledger has been made daily from straw since the 12th of April, is now ready to sell licenses and make arrangements for establishing the process elsewhere. Apply to A. MELLIER & V. BEAUMONT, 74 Broadway, where specimens of half stuff, stuff and paper may be seen. 33 10*

ENGINEERING.—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic, Self-adjusting Conical Packing, Faber's Water Gauge, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc., etc. CHARLES W. COPELAND, 35 tf Consulting Engineer, 64 Broadway.

PLANING, TONGUING, AND GROOVING—BEARDSLEE'S PATENT.—Practical operation of these Machines throughout every portion of the United States, in working all kinds of wood, has proved them to be superior to any and all others. The work they produce cannot be equalled by the hand plane. They work from 100 to 200 feet, lineal measure, per minute. One machine has planed over twenty millions of feet during the last two years, another more than twelve millions of of feet Spruce flooring in ten months.. Working models can be seen at the Crystal Palace, where further information can be obtained, or of the patentee at Albany, N. Y 27tf GEO. W. BEARDSLEE.

STATIONARY STEAM ENGINES—The subscriber is now prepared to furnish, with or without pumps, boilers, &c., Horizontal Engines on iron bed frames, good strong, substantial, plain finished engines that will do good service, say from 4 horse, $215, to 30 horse, $1,037: they have Judson's patent valves, and will be warranted to work well. S. C. HILLS, 31tf 12 Platt st, New York.

A. B. ELY, Counsellor at Law, 52 Washington street, Boston, will give particular attention to Patent Cases. Refers to Messrs Munn & Co., Scientific American. 16 1y*

SEWING MACHINE—The Office and Warerooms of the Wheeler & Wilson Manufacturing Company, for the sale of their Sewing Machines, is removed to No. 343 Broadway, where the public are invited to call and examine them in practical operation. 31 13*

BAKER'S IMPROVED BOILER FURNACE—As used at the Crystal Palace: orders received for Stationary, Marine, or Locomotive Furnaces on this plan, and also for the rights for towns, counties, or States: certificates can be shown of furnace in use for stationary, marine, and locomotive furnaces, with saving from 30 to 50 per cent. in fuel. J. AMORY, 25tf General Agent, 28 State st, Boston, Mass.

NORRIS WORKS, Norristown, Pa. The subscribers build and send to any part of the United States, Pumping, Hoisting, Stamping, and Portable Engines, and Mining Machinery of every description. 41 1y.* THOMAS, CORSON & WEST.

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Scientific Museum.

Scientific Memoranda—Foreign.

ADULTERATION OF VINEGAR, MILK, &C., IN LONDON.—A large meeting was held a short time since in London. M. Scholefield, M. P., in the chair, to discuss the adulterations in foods, drinks, &c., practiced by dealers on the people.

J. Postgate, Lecturer on Anatomy, at Sydenham College, Birmingham, presented a statement from which we quote the following curious passage:—

"Much of the malt vinegar I have met with is little less than oil of vitriol diluted with water, colored with burnt sugar, and a small quantity of the real article added to give it the proper odor. A solution of the chloride of barium soon detects the acid. Even in Stilton cheese, for which I paid the best price, calcareous nodules of carbonate of lime have been detected. Cream of tartar is an article of common consumption in the summer months, under the agreeable form of lemonade, ginger-beer, and other cooling beverages. I have examined recently a sample which contained three parts of alum in four, and the druggist was obliged to mix it with a better article to make it saleable. The price paid per cwt. was £5; alum is only 10s. per cwt., consequently the person alluded to has been defrauded to the extent of £3 7s. 6d. This cream of tartar, or rather tartar cream, will, I dare say, be shortly sold and consumed in Birmingham, under the characteristic cognomen of pop! With what effects? Spirits of sweet niter and spirits of sal volatile are both sold much diluted with water—the former often contains aquafortis, and thus a mild and useful medicine is rendered irritating and injurious; the latter in one case lately produced indirectly serious consequences.

Within a mile of the center of this midland seat of intelligence, in a back street with a very aristocratic name, resides, or did reside, a milkman, celebrated for the thickness and richness of his cream. He was thought to have rare cows. His name was up and he drove a roaring trade. His cream consisted of very finely prepared chalk, and a modicum of cow cream, to which a rich butter tint was given by turmeric. The real cream he churned. My informant is the druggist who regularly sold him these articles."

YELLOW COLOR OBTAINED FROM THE ROOT BARK OF THE BIRD CHERRY.—A peculiar yellow color is contained in the root bark of this shrub, and is extracted by ether. It is a tasteless, non-azotized body, soluble in hot water, from which it separates on cooling. It dissolves in caustic alkalies with a reddish-purple color, but on the addittion of an acid it is again separated from its former yellow color. In strong sulphuric acid it forms a blood-red solution, from which a faint precipitate falls on the addition of water, soluble in alkalies, with a purple color.

ELECTRO-DECOMPOSITION OF WATER.—Two voltameters traversed by the same current evolves different quantities of gas, if one contain acidulated water with electrodes of platinum wire, and the other only pure water with electrodes of considerable size. Foucault, to explain this phenomenon, supposes that liquids transmit electricity in two manners—by physical conductibility, which is suffered without decomposition; and by chemical conductibility, which separates their elements. Jamin finds, in reconsidering the same phenomenon, that the decomposition of water is a more complex process than is ordinarily supposed. The full volume of hydrogen is very rarely obtained, and either gas may be obtained in excess by changing the size of the electrodes. Electrodes with a large surface, whether positive or negative, evolve less gas than fine slender wires. As one only of the elements of water is obtained by a dissymmetrical voltameter, it must be admitted that the one which is not disengaged must combine with the liquid or become condensed on the plates. Binoxyd of hydrogen is produced when hydrogen alone is evolved, and the hydrogenated liquid produced on the evolution of water possesses new properties. The decomposition of water never ensues without some change in the terminal wires, slow, but continuous. The positive terminal becomes yellow, and then orange; the negative assumes a violet color. These tints by degrees increase and darken, so that something is evidently deposited upon the platinum. These deposits disappear in the air, especially if the platinum is heated. The negative plate becomes clean in nitric acid, and absorbs gaseous oxygen; the positive is cleaned by deoxydizing liquids, and absorbs hydrogen. Lastly, if the two terminals are immersed in acidulated water and united by a galvanometer, they give rise to a current of re-action, which lasts for several days. These properties acquired by the plates deserve particular attention, and may be attributed to condensation of the two gases on their surface. When the discoloration has become very intense, the plates continue evolving gas long after the current has ceased.—[London Artisan.

DOMESTICATING STRANGE ANIMALS.—Geoffrey Saint Hilaire, and other eminent naturalists in France, are beginning to turn their serious attention to the acclimation or domestication of animals which have hitherto been totally unknown to Europe, or known only as objects of scientific curiosity. Within the last month they have received for the Jardin des Plantes, a number of Yaks from China—an animal which Buffon says "is more precious than all the gold of the New World." In Thibet and China this animal serves as a horse, an ass, a cow, and a sheep; be hears heavy burdens, draws large loads, supplies milk, has flesh which is excellent, and hair which can be wrought into warm clothes. To naturalize him, therefore, in Europe, would be an immense service to mankind, and as he bears cold bravely the French naturalists have every hope that they will be able to do so, though, by the way, the late Lord Derby made the attempt and failed. Some Chinese have been brought over to attend the Yaks.

DISCOVERIES AT NINEVEH.—From a report of the Assyrian Excavation Fund Committee, we extract the following interesting particulars:—

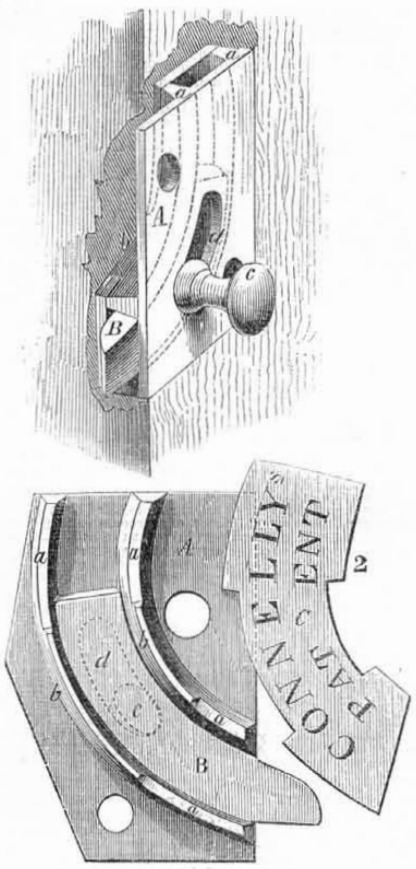
"The Committee has to announce that a new palace has been found at Nineveh, in the mound of Kouyunjik, of which Col. Rawlinson reports the following: 'A most beautiful palace has been recently discovered at Nineveh, belonging to the son of Esar-Haddon. The sculptures are infinitely superior in variety of subject, in artistic treatment, and in skill and delicacy of execution, to everything which has been before found. The palace, also, is of great extent, containing perhaps five hundred sculptured slabs, and the marbles are generally in a good state of preservation.'"

METHOD OF RENDERING A COATING OF GLUE OR SIZE IMPERVIOUS TO WATER.—If a coating of glue or size be washed over with a decoction of 1 part of powdered gall nuts in 12 parts of water, boiled down to 8 parts and strained, it becomes hard, and as solid and impervious to water as a good coating of oil paint; a kind of leather, in fact, is formed. As the tannic acid of the gall nuts can only act upon the moist glue, the decoction must either be used while the former is still fresh, or such a quantity of it must be used as to soften the glue. Such a coating would, no doubt, be worth trying upon ceilings, to prevent water penetrating from the floor above and staining them; and might also be beneficially used in houses as a coating under room-papers, especially in so damp a climate as Ireland. We suppose catechu would answer as well as gall nuts for this purpose.—[Polytechnische Centralhalle.

BRILLIANT SHINING VARNISH FOR CAOUTCHOUC, SUCH AS OVER-SHOES, &C.—M. Fritz Sollier, of Paris, states that a brilliant varnish, possessing the suppleness and durability of the caoutchouc itself, may be prepared by melting vulcanized caoutchouc, with constant agitation, in an iron pot. When fully liquid, and without waiting until it cools, small quantities of oil of turpentine, or of naphtha, or rectified coal tar naphtha, are to be added, until a liquid is obtained having the composition of one of vulcanized caoutchouc to fifteen of the solvent, after which it should be filtered, and a small quantity of ordinary caoutchouc varnish added to it, to give it more suppleness. Two coats of this varnish are to be laid on, and when dry, are brilliant in proportion as the solution was limpid and dilute, and the drying made with care, and protected from all dust. Another process of M. Sollier, adapted for varnishing small objects rapidly, is the following:—Vulcanized caoutchouc, 1; ordinary caoutchouc 4; essential oil, 28. It is only necessary to dip the small object in this solution, and to expose it to the sun, when a very brilliant, supple, and adherent coating of varnish will be obtained.—[Bulletin de la Societie d'Encouragement.

Window Sash Fasteners and Stoppers.

FIG. 1.



The annexed engravings are views of an improvement in Window Sash Stoppers and Fasteners, for which a patent was granted to E. G. Connelly, of Indianapolis, Ind., on the 21st of last Feb., (1854.) Figure 1 is a perspective view showing the application of the fastener to a window sill. Figure 2 is a detached top view of the plate with the curved sliding catch, B, in its groove or chamber, and the binding part, C, to set upon the slide, at the one side. The same letters refer to like parts.

A is a small metal plate with curved ridges, *a a*, on it, forming a groove or channel between for the sliding catch, B. The catch is of the form of a segment of a circle; *b b* are central parts of the ridges, *a a*, which are higher than at the other parts, for the plate, C, to be laid upon the ridges and lock over the slide, B. This plate, C, being laid over the slide, B, the plate, A, is fastened with screws into the sill of the window sash—a recess being cut out for its reception, so as to set in the sill like a box; *d* is an oblong curved slot in the plate to allow the shank, *c*, of the slide to project through and to move it back, when required, but not forward, as the gravity of the slide makes it catch of itself, and is self-acting, thus having the very same principle of action as a spring, which is used on many window catches, without any of the disadvantages of a spring. The manner of its thus acting is shown in both figures. Of course there is a recess made in the frame of the window to receive the slide, B. It is truly, therefore, a gravitating sash-bolt and lock. Every person, we presume, from this description and the engravings, will understand the construction and operation of this very neat, useful, and excellent sash-lock. It is now on exhibition at the Crystal Palace, and more information may be obtained about it by letter addressed to Mr. Connelly at the Crystal Palace, class No. 7.

High Heeled Boots and Shoes.

The "Home Journal"—to a certain extent a text-book of fashion and health—regards the high heels which ladies are beginning to wear as one round, at least, in the ladder of health. It also suggests the insertion of an india rubber sole—no matter how thin—between the outer and inner sole.—[Ex.

[The narrow high-heeled ladies boots which are now becoming fashionable, must be positively injurious to health instead of being a benefit. A narrow high-heeled boot throws the weight of the body upon the toes, whereas it should be supported on the whole natural surface of the foot. Thick soles without heels would be an improvement in ladies' boots, but ladies look more to neatness than comfort.

The Sugar Pine of Oregon.

The sugar pine in the Rogue river country of Oregon attains a great size, is remarkably straight, smooth, symmetrical and rich colored. Its crown is as smooth and well shaped as if it had the services of a barber every month. It gets its name from yielding a rich white sugar, which is said to answer very well for sweetening.

Loss of Life in English Coal Mines.

About one thousand persons lose their lives by accidents every year in the British mines. A common saying among coal miners is, "we are like sailors, exposed every day to danger."

LITERARY NOTICES.

THE LONDON QUARTERLY REVIEW—For April, contains several articles of great interest:—Sterne, Sacred Geography; Lord Holland's Memoirs of the Whig Party; The Russian Empire; Criminal Law Digest; Treasures of Art in Great Britain. The "Turks and the Greeks," and the New Reform Bill, are the leading articles, and are characterized with the usual brilliancy which distinguishes this Review. Leonard Scott & Co., No. 79 Fulton st., New York, are the re-publishers of all the leading Reviews of Great Britain and we would advise every man who desires to be well informed upon literary subjects in the old world, to take some one of them at least.

FRANK LESLIE'S LADIES' BOOK—Published at No. 6 John street: price 25 cents per number, $3 per annum. The June number of this unexceptional monthly has appeared upon our table, and it compares favorably with the previous issues which we have frequently noticed, and universally recommended to our female friends.

THE KNICKERBOCKER—Old "Knick," for June is, as usual, rich and sparkling—the most original of the American monthlies. The Knickerbocker is in its forty-third volume, yet it is the most vigorous, "ever fresh and ever young," of all our literary magazines. The Editor's Table, is always laughing—not groaning like other tables, with true wit.

PUTNAM'S MONTHLY—This sterling magazine for June is, as usual, solid, spirited, rich, and variegated. It contains an able review of Compte's Philosophy.

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